

WESTERN INDUSTRY



Western population growth creates constant building materials demand; giant felt-drier helps fill this need. For details see Page 5.

THIS ISSUE: To Make Money on a Job, Analyze Each Single Step First; Two-Fold Problem: Salt-Free Water, Waste Disposal; Good Follow-Up Method Makes Suggestion System Pay Out; Quick Quenching of Molten Rock to Make Fertilizer; Designing Factory for Speedy Materials Flow; How Industry Can Make Good Use of BLS Service; Essential Steps to Success in Export Markets

Five Cents

VOLUME XIII

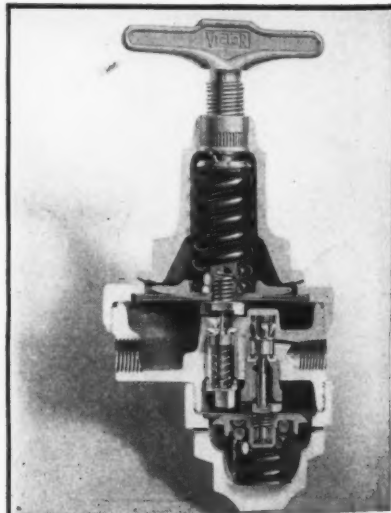
NUMBER 10

October, 1948

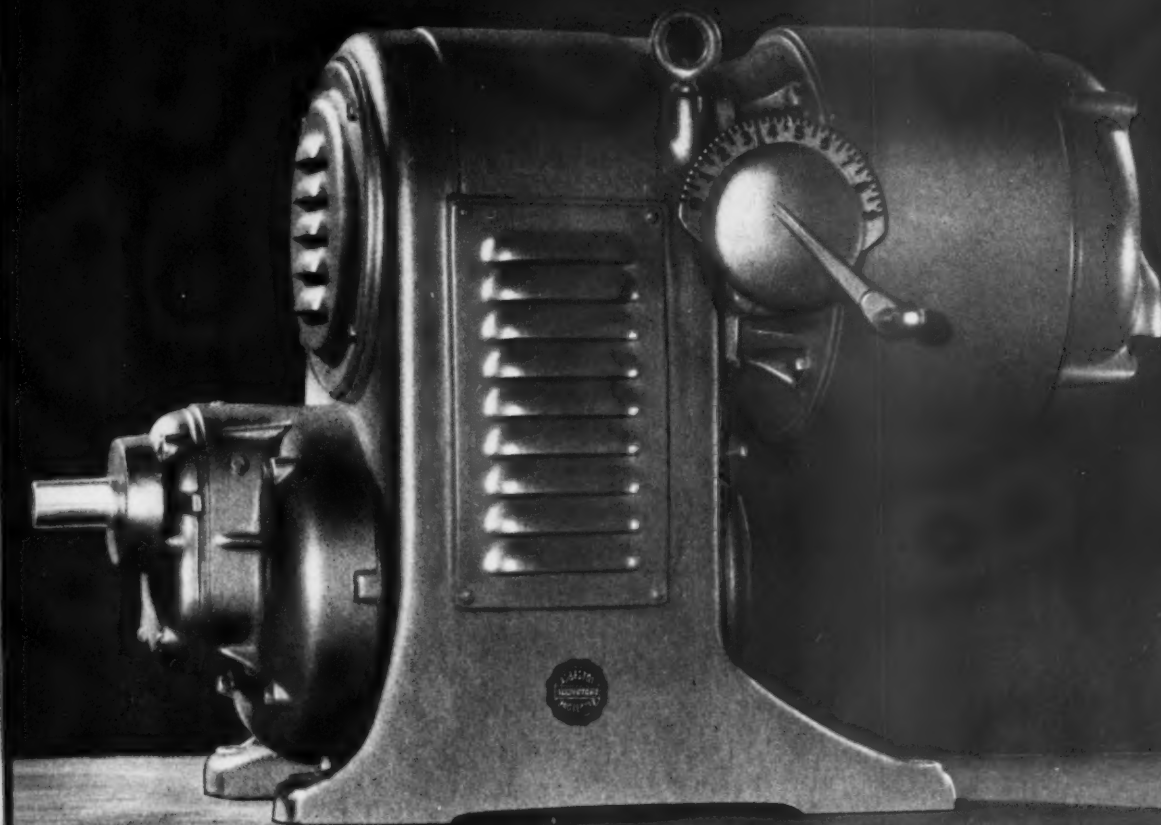


Made by **VICTOR**

proper control of gas pressures safeguards gas or compressed air operated tools and, when welding or cutting torches are involved, fine pressure reducing regulators conserve gases and safeguard operators. single or two-stage reduction regulators for all types of cylinder gases or cylinder manifolds . . . for very small or very large hourly gas volume . . . are made by victor . . . and it's more than a slogan that victor welding and cutting equipment costs less to own and to operate. victor equipment company, san francisco 7, calif.



what's under the hood is what makes the automobile go...what's inside of a regulator determines its true value.



Type VEV—GH—Single Reduction Combination Upright Varidrive—Syncrogear

U. S. VARIDRIVE MOTOR

HAS ALL OF THESE FEATURES

MICROSPEED CONTROL. Accurate, non-fluctuating speeds over a wide range are instantly available. Greater production can be obtained by adjusting to changing needs without stopping machine.

QUIET, SHOCKLESS POWER. The one-piece, flexible Varibelt transmits power smoothly and absorbs load shocks and vibration. The Autotaut belt tensioner insures proper belt contact, eliminating slippage regardless of load. Permanent alignment of parts is insured by normalized castings.

SIMPLE, ECONOMICAL OPERATION. No electrical contacts or brushes to be replaced. Fewest moving parts and rugged design give dependable service with low maintenance. Enclosed, drip-proof housing protects against falling objects.

UNIVERSAL APPLICATION. Many sizes and assemblies are available to meet any installation need. Horizontal or upright models with speeds from 1 to 10,000 rpm are available from $\frac{1}{4}$ to 50 h.p. Speed ratings range up to 7 to 1.

COMPACT, SINGLE POWER UNIT. High speed motor and drive reduce space and increase efficiency. Built-in reduction gearing (where necessary) eliminates additional apparatus and simplifies installation. Permits direct connection.

LONG LIFE. Wear is limited to the easily replaceable Varibelt. All operating parts are amply lubricated and designed to reduce wear to a minimum. Liberal use of ball bearings reduces friction. The Varidrive often outlasts the machine it drives.

IF IT ISN'T A U. S. MOTOR IT ISN'T A VARIDRIVE

See next page

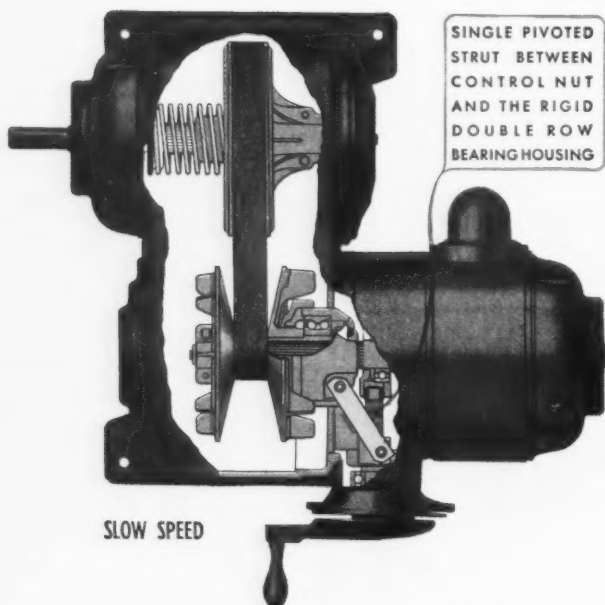
CUMBERSOME COMPLEXITY - changed to . . .

ALL IN ONE

SIMPLICITY

ELECTRIC MOTOR plus SPEED CHANGER or CONE PULLEYS or CONTROLLER plus GEAR BOX = **U.S. VARIDRIVE**

U. S. VARIDRIVE MOTOR



PROVED PERFORMANCE

Dependable operation is assured when you install a *U.S. Varidrive*. Its design has been perfected and proved over a period of more than 15 years. During this time U.S. engineers have gained actual field experience with a multitude of industrial applications of variable speed power. The present day Varidrive motor is the result of practical improvement of a sound fundamental principle.

NEW, IMPROVED TYPES —WITH MICRO-SPEED CONTROL

The improved *U.S. Varidrive* motor is quickly and easily adjusted to give any required speed over a wide range *while operating*. No stopping, or declutching of load, is necessary. Simply turn the control handle until the desired speed is obtained. An *infinite* number of speeds are available. For example, a quarter-turn of the control handle will result in a one per cent change of speed for a typical condition. Even closer adjustment is readily made. Speed can be increased as much as 700 per cent within a few moments. Once set, any given speed is maintained, regardless of load fluctuations. U.S. engineers have applied the years-tested principles of Varidrive to a completely redesigned series, now ready for delivery. These advanced designs are the greatest contribution to motor flexibility in the last three decades of motor progress. The restyled control handle is more conveniently located, with choice of positions. The sliding spline drive with Autotaut belt tensioner appreciably increases life of mechanical parts and belt. Synthetic cords in the specially designed belt give longer wearing qualities and add resistance to heat and oil. Belt changing is made easy. Greater visibility is given to the speed indicator.

A TIP TO THE VERY WISE—BUY VARIDRIVES

Write for descriptive Varidrive Bulletin

The QUALITY LINE of Power

VARIDRIVE MOTORS	for infinite speeds
SYNCRGGEAR MOTORS	for multiplied power
VERTICLOSED MOTORS	for deep well pumping
UNICLOSED MOTORS	Horizontal and Vertical
UNIMOUNT MOTORS	Horizontal and Vertical
TOTALLY-ENCLOSED MOTORS	for hazardous services

AUTOSTART Buffers

U. S. ELECTRICAL MOTORS Inc.

ATLANTIC PLANT: MILFORD, CONN. . . PACIFIC PLANT: LOS ANGELES 54, CALIF.
District Offices: Boston 16, New York 6, Philadelphia 2,
Pittsburgh 22, Chicago 8, San Francisco 7, Seattle 4.



U.S. MOTORS

—embody

**ASBESTOS PROTECTION
NORMALIZED CASTINGS
LUBRIFLUSH LUBRICATION**

**STREAMLINE DESIGN • WEATHERPROOF HOUSING
SOLID DIE CAST ROTORS • INTRACOOLED VENTILATION
AUTOSTART ACTION**

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This Month in WESTERN INDUSTRY

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OCTOBER, 1948

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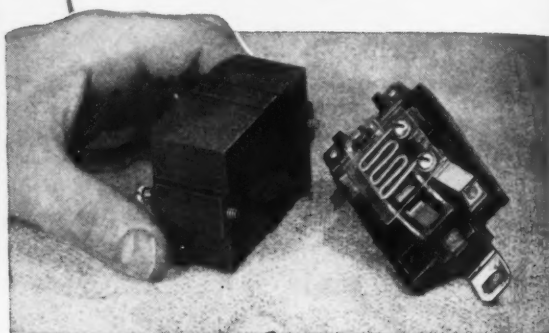
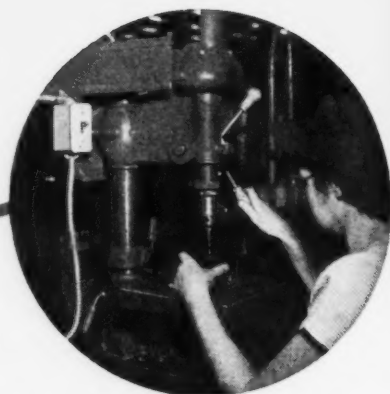
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Front Cover

Felt is the basic material used in manufacture of roofings, linoleum, printed felt-based floor coverings, etc., so sorely needed for homes to keep pace with the West's fast-growing population. Felt drying rolls shown are one step in process used to make them at Emeryville, Calif., plant of Paraffine Companies, Inc.



F-HP* MOTOR-STARTING SWITCH...

New Design for improved performance

Entire new line of CR1061 manually operated switches—general purpose, water-tight, explosion-proof types—now available. New from cover to heater. Check these features for:

EASIER INSTALLATION

- All wiring terminals easily accessible on top of switch unit
- Heaters have one mounting screw fastened in position to prevent incorrect mounting—stamped with current rating

POSITIVE OVERLOAD PROTECTION

- Employs sturdy bi-metallic protective device
- Positive indication power is off as switch handle moves to OFF position on overload

LONGER LIFE

- Self servicing—wheel-type movable contact cleans as it rolls against stationary contacts

*Fractional Horsepower

- High interrupting capacity—arc snuffed quickly as silver contact recedes into recess in base

USE...

On a-c up to 1 hp at 110 to 220 volts

On d-c— $\frac{3}{4}$ hp 115 volt, $\frac{1}{8}$ hp, 230 volt

double-pole forms for 1 hp, 115 to 230 volts d-c
Fill in the coupon and send it in for more information. Control Division, Apparatus Dept., General Electric Company, Schenectady 5, N. Y.

Apparatus Dept., Sec. H676-276
General Electric Company
Schenectady 5, N. Y.

Gentlemen:

I want to know more about your new CR1061 switches.
Please send me Bulletin GEA-2234E.

NAME.....

COMPANY.....

ADDRESS.....

GENERAL  ELECTRIC

FELT SEALS RETAIN LUBRICANTS, EXCLUDE DUST

Two Basic Types of Felt Seals, Applicable in a Wide Variety
of Designs, Solve Most Sealing and Packing Problems

The unusual and unique properties of felt make it especially valuable in sealing and packing applications. Such uses are increasing steadily, as more and more engineers and designers appreciate the simplicity of application, reliability of performance, and long life of felt. For any machines in which it is necessary to retain bearing lubricants, and feed them automatically and uniformly as needed, or from which dust, fumes or moisture must be excluded, felt seals and packings merit your consideration.

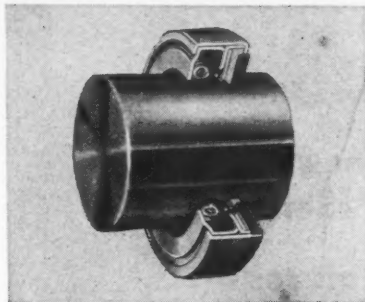
PHYSICAL CHARACTERISTICS

The chief physical characteristics of felt that make it so highly suitable for seals are absorption capacity, low coefficient of friction, and resiliency. Oil absorption capacity is high, and is largely a function of felt density. The coefficient of friction averages 0.22 for dry felt against steel, which is reduced to 0.15 when the felt is pre-saturated with oil of 41.2 Saybolt viscosity at 210°F. Because of its resiliency, felt maintains a constant sealing pressure regardless of wear, end-play, minor mis-alignment or out-of-round conditions of metal shafts and assemblies. Felt seals will never fail through aging, embrittlement, or disintegration.

TWO TYPES OF SEALS

Plain Felt Seals. These are precision-cut washers, produced by American Felt Company, your cutter, or in your own plant, with a tolerance of .005". These are cut from standard types of S.A.E. Felt, and may be pre-saturated with lubricant before assembly. The lubricant employed is generally one higher in viscosity than that which is to be retained. Such seals have only two limitations: they should not be used to retain oil of extremely low viscosity, nor to retain pressurized lubricants. For such services, the laminated seal is recommended.

Laminated Felt Seals. In these, the plain felt seal is combined with one or more impervious septums of 1/64 to 1/32 inch sheet Hycar. The felt may be of the same density throughout, or felt of different densities may be used on opposite sides of a septum. Thus a laminated seal can have felt of high density and oil-retention capacity on one side, and on the other side a lower density felt for dust exclusion. An example of this is seen at (a) in the drawing, which shows a single-unit washer that combines lubricant-re-



tention, sealing, and dust-exclusion. The impervious septum may also be on only one side of the washer, as in (b). The multiple laminations of (c) to (e) inclusive are further modifications, developed for progressively more difficult mechanical sealing operations.

IMPREGNANTS

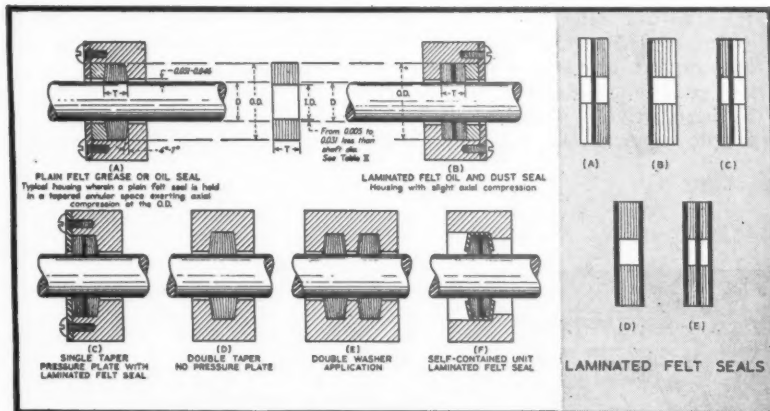
Both plain and laminated felt seals may be impregnated with standard grades of oils and greases, or special treatments may be used to meet unusual conditions.

SELECTION

Felt seals, plain or laminated, are recommended where operating temperatures lie between -60° and 250°F. and where peripheral shaft speeds do not exceed 2000 feet per minute. Since felt is an engineering material, thoroughly understood and standardized, selection of the proper type to meet any given conditions within the above range can be made with complete confidence.

COLLABORATION

American Felt Company engineers will gladly collaborate with you in design of seals and selection of the proper type of felt. The material in this advertisement is a condensation of data given in American Felt Company Data Sheet No. 11, "Felt Seals, Their Design and Application." This contains additional technical information, such as tables showing oil absorption capacity, and dimensional tolerances and degree of housing compression for plain and laminated felt seals. This eight-page Data Sheet is the outstanding paper on this subject. Write for it on your company letterhead.



American Felt Company

TRADE MARK

Engineering and Research Laboratories:
Glenville, Conn.

PLANTS: Glenville Conn.; Franklin,
Mass.; Newburgh, N. Y.; Detroit, Mich.;
Westerly, R. I.



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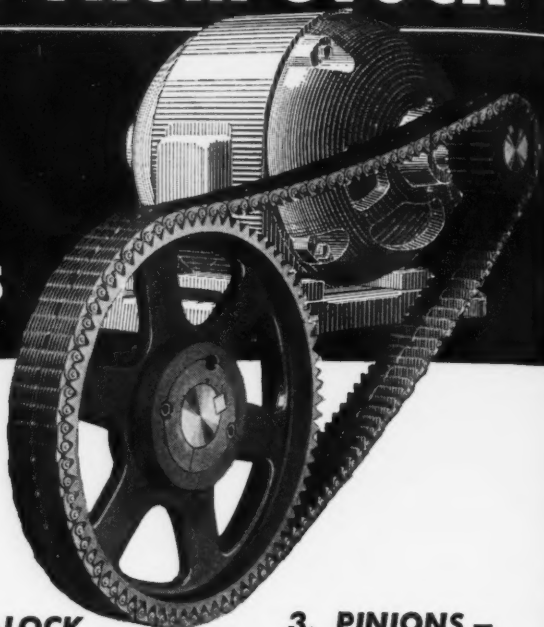
A. B. BOYD COMPANY

San Francisco 3: 1235 Howard St. Los Angeles 21: 763 E. 14th St. Portland 14: 733 S. E. Union Ave. Seattle 9: 404 Dexter Ave.

Easy to Order FROM STOCK

THE NEW LINK-BELT INDUSTRIAL STANDARD SILENT CHAIN DRIVES

combining the well-known advantages of silent chain with these **4** new features



1. INTERCHANGEABILITY

Link-Belt stock silent chain will operate on sprockets cut to the new Industrial Standard tooth form; and Link-Belt stock silent chain sprockets will fit the new Industrial Standard silent chain.

2. TAPER-LOCK BUSHINGS

No reboring necessary
Easy assembly
Tight fit on shaft
Easy removal

3. PINIONS — HARDENED TEETH

All-steel, with hardened teeth.
Finished bores and keyways for N.E. M.A. motor shaft sizes. (Pinions can also be furnished for other shaft sizes.)

4. EASY SELECTION

Easy-to-use selection tables cover ½ to 50 H.P. stock drives, tailored for normal operating conditions. Selecting a drive is as simple as A, B, C.

Selection table showing drive specifications and dimensions. The table includes columns for horsepower, speed, and various dimensions. A diagram of a silent chain drive is shown above the table.



ASK NOW FOR BOOK 2125

Contains Full Information on Selecting and Installing Drives

Explicit detailed information in Book 2125 makes selection of the correct drive simple and easy. Availability of stocks of chain and sprockets, at distributors and factory branch stores eliminates delay. Avail yourself now of the proved advantages of Link-Belt silent chain drives, on your applications up to 50 h.p. by asking our nearest office or distributor for the new Book 2125.

LINK-BELT COMPANY PACIFIC DIVISION

Plants at San Francisco 24, Los Angeles 33, Seattle 4.
Offices and Warehouses: Portland 9, Spokane 8, Oakland 7. 11,014-P

LINK-BELT

THE SYMBOL OF QUALITY
LB
LINK-BELT

SILENT CHAIN DRIVES

Extensive Manufacturing Facilities



Here at Torrance, California, under the direct supervision of a single organization, you'll find the largest completely integrated machinery manufacturing plant in the West.

Here you can get National's own IDEAL Electric Carbon and Alloy Steels in a variety of types—including steels for dies, bearings, ordnance and aircraft parts—in press forged billets, large bars and open die forgings

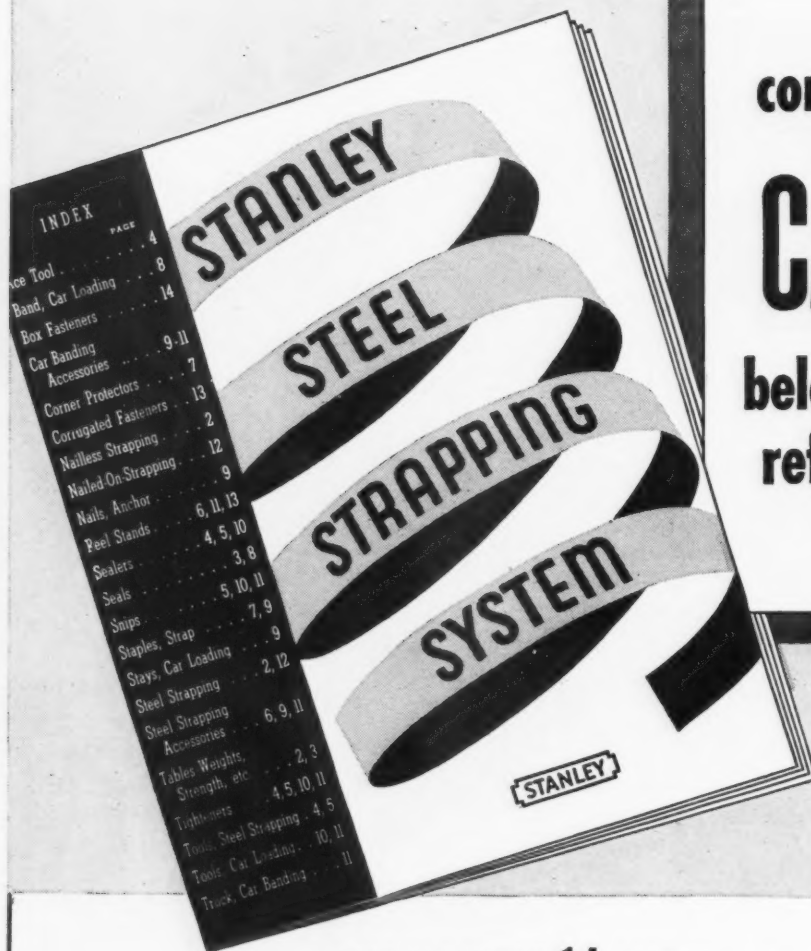
up to 35,000 pounds. Extensive machining facilities are also available for your work, and a modern laboratory is at your disposal for chemical and physical testing, photomicrographic examination, etc.


Take advantage of the splendid facilities—right at your front door—to assure the high quality of your products. You'll be sure to like the fast, convenient service.

THE NATIONAL SUPPLY COMPANY

TORRANCE, CALIFORNIA • LOS ANGELES AREA

Ideal Pressed Steel Forgings, Billets and Large Bars Are Distributed by
C. B. S. STEEL AND FORGE
3221 E. Slauson Ave., Los Angeles 11, California, Phone LAfayette 0147



This 
comprehensive
CATALOG
belongs in your
reference file!

HERE IN A HANDY, **14**-PAGE letter-size booklet are the quick facts and figures on steel strapping. Tables of tempers and finishes, of pounds per thousand feet, of feet per pound, of strength of strapping and seals, number of seals per 100 lbs. and weight per 1000 seals. Large, clear photographs and drawings with dimensions. Short, factual descriptions of various types, sizes and finishes of strapping, seals, tools and accessories...and related products such as corrugated fasteners and box fasteners.

This coupon will start this catalog, "Stanley Steel Strapping System" to your desk. Fill it in and mail it NOW.

108 W. 6th St., Los Angeles 14 • 681 Market Street, San Francisco 5 • 618 2nd Ave., Seattle 4

The Stanley Works, Steel Strapping Division
234 Lake St., New Britain, Conn.

Please send me your catalog, "Stanley Steel Strapping System".

Name.....

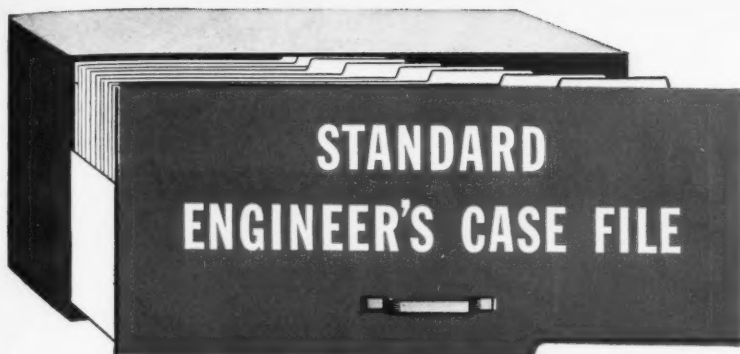
Company.....

Address.....

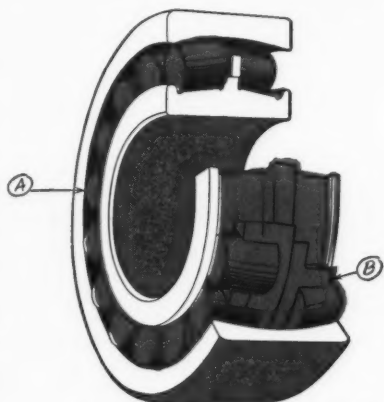


Reg. U. S. Pat. Off.

HARDWARE • HAND TOOLS • ELECTRIC TOOLS • STEEL STRAPPING



CASE 1050--PROVIDING FLUID LUBRICATION IN ANTI-FRICTION BEARINGS WITHOUT LEAKAGE.



HEAVY-DUTY ROLLER BEARING

Heavy-duty industrial roller bearings started easier and ran freer when lubricated with Calol Grease BRB-340. Specially-made for all anti-friction bearings. Apply with grease gun or by packing.

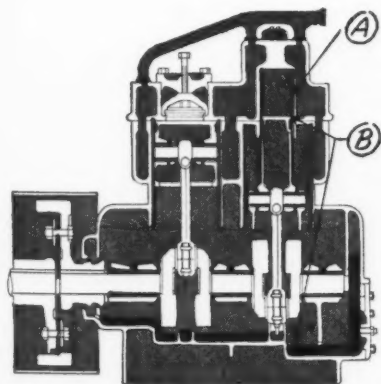
Has unusual ability - softens around roller and balls in bearings to oil-like viscosity but remains firm on outer parts. Resets quickly so oil swept aside by moving bearing parts keeps outer grease seal intact.

A. Soft consistency around moving parts of bearings lowers starting torque, reduces internal friction.

B. Firm grease forms seal that helps prevent leakage.

High resistance to deterioration under high speed conditions and extreme temperatures provides exceptional lubrication over extended periods of operation.

CASE 1045--MINIMIZING OIL OXIDATION AND DEPOSIT TROUBLE IN AIR COMPRESSORS.



TWO-STAGE, 2 CYLINDER AIR COMPRESSOR

In air compressors of all types and sizes, heat-resistant Calol Multi-Service Oil materially reduced deposits on discharge valves, cylinders, bearings and in crankcases. Comes in six viscosity grades: 45X, approximately SAE 10; 50X, SAE 20 medium; 55X, SAE 20 heavy; 65X, SAE 30; 75X, SAE 40; 85X, SAE 50.

A. Detergent compound keeps parts cleaned of gum and lacquer and prevents ring sticking . . . provides constant lubrication on hot spots.

B. Oxidation inhibitor prevents formation of sludge and other deposits caused by air, extreme heat, moisture, dust and other contaminants.

Has high metal-adherent quality - maintains film of oil in idle machines which prevents starting wear and protects against rusting.

Calol Multi-Service Oil will correct gum and lacquer problems in many machines - in air compressors, Diesel and natural gas engines, enclosed gears, bearings.

Trademarks, "Calol," "RPM," Reg. U. S. Pat. Off.

STANDARD TECHNICAL SERVICE will make your maintenance job easier. If you have a lubrication or fuel problem, your Standard Fuel and Lubricant Engineer or Representative will gladly give you expert help; or write Standard of California, 225 Bush Street, San Francisco 20, California.



FOR EVERY NEED A STANDARD OF CALIFORNIA JOB-PROVED PRODUCT

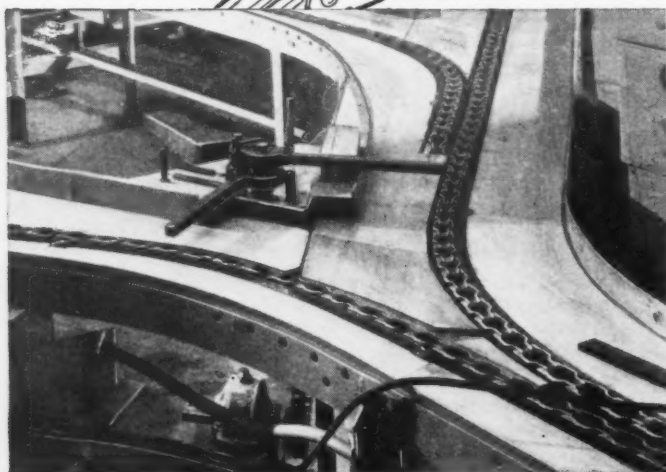
flexibility *that saves floor space!*

- Rex Double-Flex Chains help you make the most effective use of your floor space...simplify conveyor set-ups. Their unique ability to flex in two planes enables them to make horizontal turns, thus making it possible to weave around beams and other obstructions.

These space-saving chains provide an ideal means for carrying cartons, boxes, large cans, packages and parts into and away from plant unloading or delivery points. They are also effectively used in packing lines and assembly tables.

Rex Double-Flex Chains are made of Rex Z-Metal for maximum resistance to corrosion and abrasive sliding wear. Links have added wearing surfaces on sliding edges. Rex Double-Flex will outlast any similar type chain. For all the facts, call your local

Rex Field Office or write Chain Belt Company,
1723 West Bruce Street, Milwaukee 4, Wis.



- Rex Double-Flex Chains can be turned to converge at one delivery point to considerably simplify handling problems and step up efficiency.
- The ability of Rex Double-Flex to weave around obstructions simplifies conveyor set-ups...makes most effective use of floor space.



PICK ANY SPOT... THEN PICK Durasheath

FOR POWER DISTRIBUTION, you can use a single type and size of Durasheath cable—whether it's small or large—one, two or three conductors—in runs that are in the air, in conduit or directly in the ground.

ADVANTAGES IN DURASHEATH:

High tensile strength and strong resistance to flame and abrasion.

Extreme flexibility that makes handling easy.

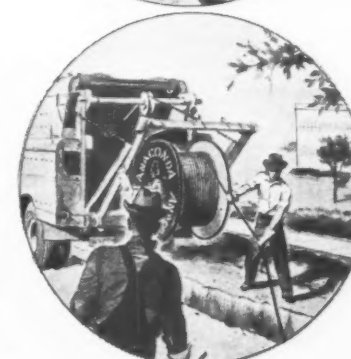
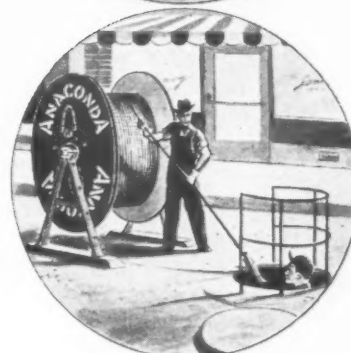
Resistance to moisture, acids and alkalis generally found in the soil.

No problems of electrolysis, corrosion and extremes in temperature.

Write for Bulletin DM 4820, "Durasheath, the All-Purpose Cable."

ANACONDA WIRE & CABLE COMPANY

25 Broadway, New York 4, N. Y.



THE ALL-PURPOSE CABLE



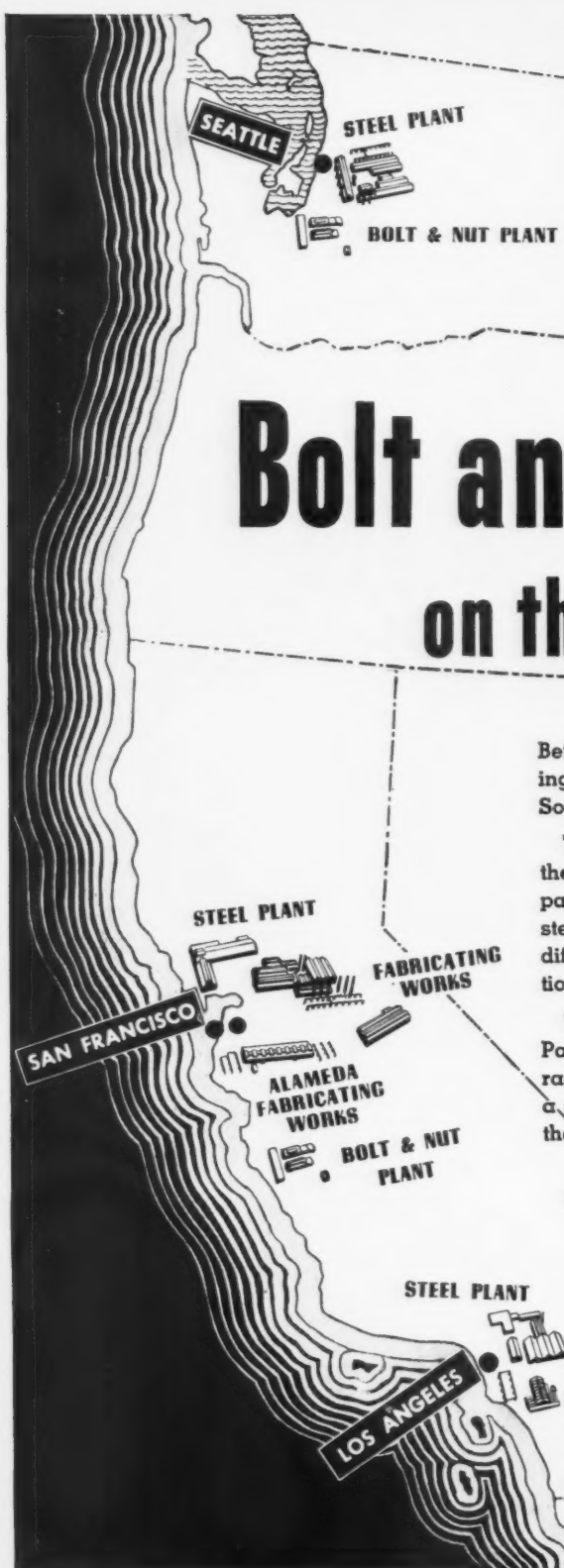
Anacondaloy*-coated copper conductors are insulated with a moisture-resisting synthetic rubber compound, bound with color-coded rubber-filled tape and enclosed in a tough, high mechanical strength, moisture- and flame-resistant outer jacket of Neoprene. Conductors have the lasting protection of a solid block of synthetic rubber and Neoprene.

*Reg. U. S. Pat. Off.



3

Bolt and Nut Plants on the West Coast



Bethlehem Pacific manufactures bolts, nuts and allied fastenings for Western industry at plants at three locations: Seattle, South San Francisco, and Los Angeles.

Though located in widely-separated industrial centers, these plants are operated and coordinated by a single, compact organization. Each plant is a self-contained unit, in which steel is made and processed into fastenings of hundreds of different styles and sizes for building construction, transportation equipment, machinery, and other uses.

The manufacture of fastenings is but one of Bethlehem Pacific's activities. Bethlehem Pacific supplies a complete range of steel products. Its facilities are presently undergoing a substantial expansion to provide still larger tonnages for the steadily-growing industries of the Western states.

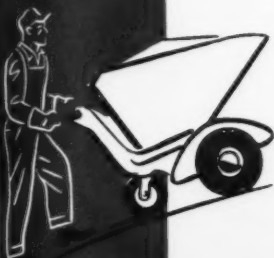
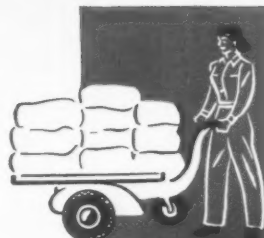
BETHLEHEM PACIFIC COAST STEEL CORPORATION
Sales Offices: San Francisco, Los Angeles, Portland, Seattle, Honolulu



BETHLEHEM PACIFIC

Only **GENERAL** gives
you a complete line of

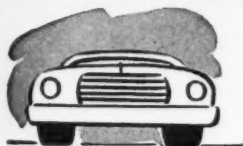
Wide Base
Industrial Pneumatics
for Heavy Hauling



**The Great Bell Prime Mover Moves
1000 lbs. Easily, Safely on General Industrial Pneumatics
Standard for all Army Air Corps Ground Equipment**

General pioneered and developed the wide-base principle for industrial pneumatics . . . made it standard for every industrial tire in the line . . . and the Army Air Corps, convinced that it made tires last longer, work better and easier . . . adopted wide-base Generals as standard for all ground equipment.

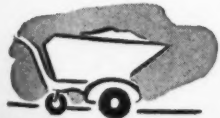
That's why the most modern material handling equipment, like the Bell Prime Mover, moves loads faster, easier, cheaper and better on Generals. Bell Aircraft Corp., Prime Mover Division, Buffalo, N. Y.



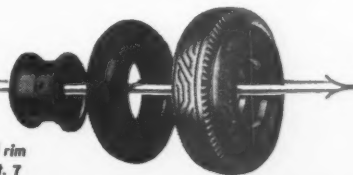
Wide Base
Modern design for passenger car tires.



Wide Base
Modern design for truck tires.



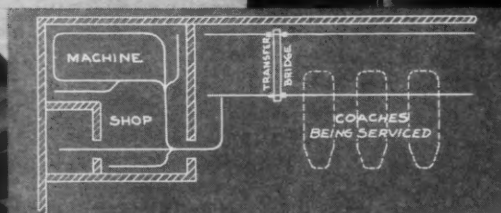
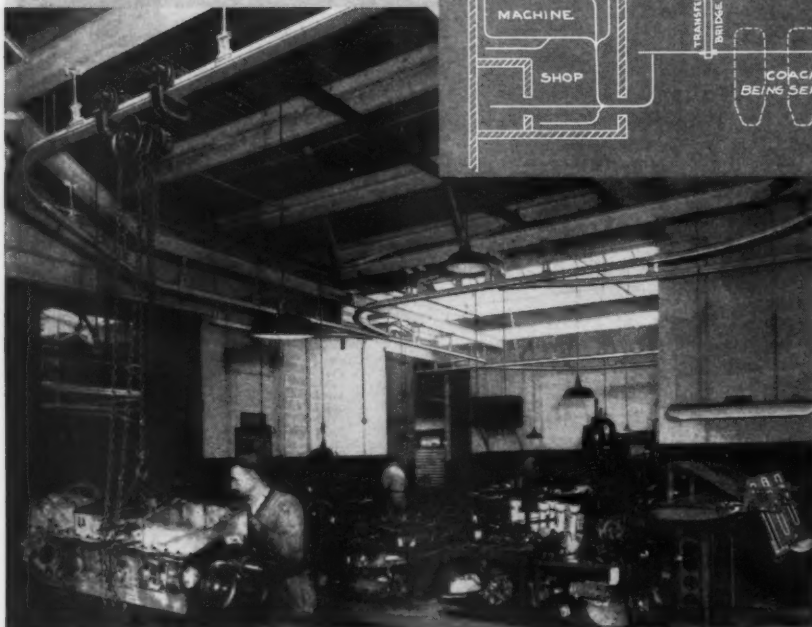
Wide Base
Modern design for modern materials handling.



Available in complete assemblies of tire, tube and rim or tire only. For further information write Dept. 7

THE GENERAL TIRE & RUBBER CO. • AKRON, OHIO

Tramrail System Aids Greyhound Coach Repairs



As indicated in diagram, the Tramrail transfer bridge in photo above may be interlocked with a rail extending from machine shop, making it easy to deliver loads like this engine to shop without rehandling.

Photo at left shows how Tramrail track with switches and curves provides necessary hoisting and conveying service in machine shop.

More than 100 modern Greyhound Coaches are kept in tip-top condition by the Syracuse, N. Y., shop of Central Greyhound Lines, Inc. of New York. To facilitate the handling of engines and other heavy parts in and out of the coaches and in the up-to-date machine shop, a simple Cleveland Tramrail hand-propelled system is provided. This includes standard overhead rail with switches and curves to adequately cover all points where lifts must be made.

The track from the machine shop passes through a doorway and extends to the runway of an overhead traveling Tramrail bridge which may be interlocked with it. The arrangement is such that an engine can be removed from a coach and transported via the overhead system directly to the machine shop without rehandling.

This is one of 30,000 Cleveland Tramrail installations. Regardless of what your materials handling problem is, most likely we have already solved dozens of similar ones.



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THE CLEVELAND CRANE & ENGINEERING CO.
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CLEVELAND  **TRAMRAIL**
OVERHEAD MATERIALS HANDLING EQUIPMENT

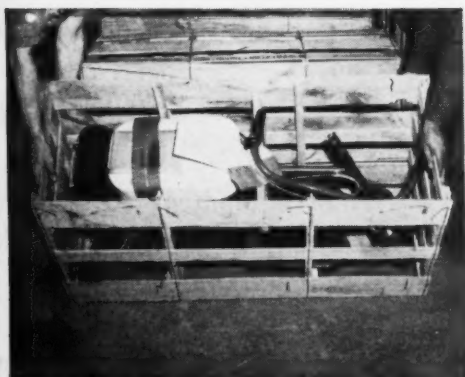
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our Wirebound Crates even benefit our dealers

REPORTS THE BEAM CORP.,
WEBSTER CITY, IOWA



1. Stored flat for shipping room space economy, Wirebounds are quickly and easily assembled.



3. Packed, the scooter rests snugly in specially notched cross pieces nailed to the bottom of the crate.



2. Two men lift the scooter and lower it into place in the assembled Wirebound Crate.



4. Packaging is complete when the top is folded into position and secured by twisting the four binding wires.

"Dealer reactions prove Wirebounds the ideal crate for the 'Doodle Bug' motor scooter," according to G. P. Castner, Vice President and General Manager of the Beam Manufacturing Company of Webster City, Iowa. "Merchandise arrives at the point of destination ready for immediate assembly and display on the sales floor."

Easily stored in a relatively small space, Wirebounds afford many economies in the Beam shipping room. Speed of packing operations, ease of handling and low initial cost all contribute to an efficient packaging procedure.

Because they combine the strength of steel with thinner wood, Wirebound crates also produce a considerable reduction in actual freight costs. This reduction, plus complete protection for merchandise in transit has enabled Wirebounds to earn invaluable dealer good will for the Beam Manufacturing Company.

Wirebounds can be designed to carry almost any product—regardless of size or shape—safely, efficiently and at lower cost. For complete information or a call by a specially trained Wirebound Sales Engineer, fill out and mail the coupon, *today!*

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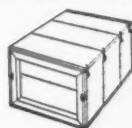
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ADDRESS _____

CITY _____ ZONE _____ STATE _____

PRODUCT _____

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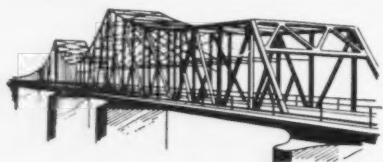
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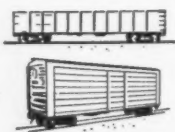
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**Call on Independent For Immediate Work or
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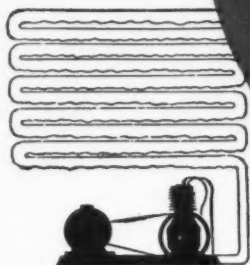


2. Turmaco Oils form a minimum of carbon and have a fluid "oiliness" that assures the free, easy working of parts. The low pour points of the four grades of Turmaco Oils assure flowability at sub-zero temperatures.

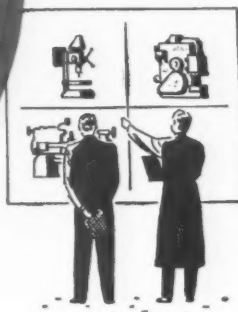


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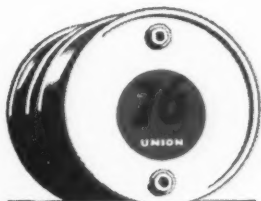


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4. In fact, you'll find RED LINE Turmaco Oils will do an efficient, economical lubricating job for enclosed gear boxes, electric motors, hydraulic systems—for any general machinery lubrication requiring a high-quality "turbine treated" oil.

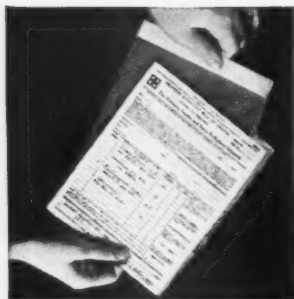
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For full information on RED LINE Turmaco Oils call your local Union Oil Representative or write Sales Dept., Union Oil Company, 617 W. Seventh St., Los Angeles 14, Calif.

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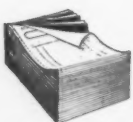
No matter what kind or how many, they still must be produced... copied... distributed... filed. And there's where Uarco business forms save you money! They cut the time for each operation to an absolute minimum. And at today's wages, *time is certainly money!*

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You can, you know . . . by just calling your local Chase warehouse. They're ready to supply you with brass and copper sheet, rod, wire, and tube . . . plus a wide variety of miscellaneous items—from washers,

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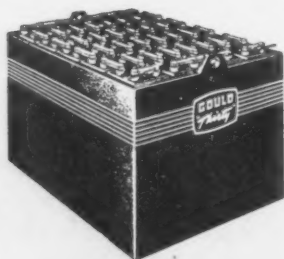
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In Our Mail Box

Research Needed

Editor, Western Industry:

We enjoyed reading the article by Mr. Davis in your September issue, and would like to congratulate him on the very competent job he has performed.

We have contributed to the California Association of Production Industries mentioned in Mr. Davis's article because, as manufacturing chemists, we do not care to be arbitrarily closed down at the whim of some person or agency. On the other hand, I would like to call your attention to the fact that the very basic nature of water as a raw material in the California economy is going to force industry to take steps to avoid stream and water pollution. We believe it is essential that the problem be discussed calmly and approached from the legal viewpoint with due respect for everyone's rights.

However, we sincerely hope that industry will not try to avoid solutions via the research and scientific study method by adopting wholly the tactics of political pressure. Perhaps a contribution to a research fund to develop waste disposal methods and recover by-products from wastes would be equally as well spent as funds for presenting our viewpoint to the law-making bodies alone. Certainly the organization of a comprehensive research program by industry would greatly enhance the persuasiveness of our legislative approach.

DR. B. N. DICKINSON
Chemical Process Company
Redwood City, Calif.

Step in Right Direction

Editor, Western Industry:

The Gallagher Transfer system for reducing accident costs through an incentive system, described in your September issue, is most commendable. It certainly is a step in the right direction; that is, that employer and employee have interests in common, including responsibility. Judging from the article, the system has met with a high degree of success and both sides have benefited materially.

A. F. FRANZ
V.-Pres. in Charge of Operations
Colorado Fuel & Iron Corporation
Pueblo, Colorado.

Northwest Traffic Data

Editor, Western Industry:

The State College of Washington in cooperation with the Office of Domestic Commerce, United States Department of Commerce, has recently published a traffic flow study, "Inter-regional and Intra-regional traffic of the Mountain-Pacific Area in 1939," which we think will be of considerable interest to the readers of your publication. I am enclosing a copy of this report, as we thought that you might wish to have it reviewed or drawn to the attention of your readers. It is now available and is priced at \$2.00 per copy. Orders should be sent to J. A. Guthrie, Director, Bureau of Economic and Business Research, The State College of Washington, Pullman, Washington.

The study was directed by Professor James C. Nelson, who is in charge of our courses in Transportation and Public Utilities and formerly was Chief of the Transportation Division, United States Department of Commerce. The report presents, for the first time, state-to-state traffic flows by individual commodities or commodity groups as reflected in a waybill sample of all carload traffic terminated by Class I railroads on one day each month of 1939, a normal business year.

Obviously, data showing the state of origin of all railroad traffic terminated in a given state, and the state of destination of all traffic originating in that state, have a number of uses in the exploration of traffic and market potentials, in studying industrial and agricultural opportu-

(Continued on page 25)

EDITORIAL COMMENT

Final Responsibility Is Ours

IN THE last analysis, the West has itself to blame for the growth of the U. S. Reclamation Bureau from an impartial federal agency, set up to assist in the development of the public domain, into an authority-craving bureaucracy resorting to devious infiltration methods in its zeal to force its ideology on the West.

It is easy enough to denounce the Bureau for posing as the "Great White Father" from whom blessings flow to the underprivileged; easy enough to condemn it for attempting to push its way into control of settled irrigated areas in the West; easy enough to be dismayed over its power to influence the trend of industrial development. It is also easy enough to believe that all this will be changed if the Republicans get complete control of the government, when as a matter of fact the Republican nominees for both the presidency and the vice-presidency are much more "liberal" in their attitude than Congress.

Actually, there is a trend toward government control and public ownership which must be recognized as stemming from three causes: (1) the selfishness and excesses of private enterprise in the past, from which private enterprise must prove itself free today; (2) the intolerance and smugness of private enterprise regarding the plight of the less successful members of society; (3) failure of the commercial, industrial and agricultural organizations representing the West to come forward to take the initiative in formulating positive large-scale policies for the development of the West.

The aggressive action suggested above cannot be accomplished simply by adopting resolutions. The walls of oblivion are papered with resolutions. Action requires active committee work to prepare Western development plans, not in the dream stage but actually given adequate engineering treatment—and this requires funds.

Then the West will be in a position to call upon the government to do the final engineering, financing and construction, if the project is beyond the reach of private capital, and to do it as a service for the West, not as an ivory-tower program handed down from above.

An All-Western Conference

AS A SEQUEL to the above editorial, and along the line of our favorite theme—unity of the West—may we ask once more who will undertake the staging of an over-all Western meeting of commerce and industry? Sooner or later the logic of events will force such a gathering, but why let it wait until some crisis compels hasty consideration and hasty action on an emergency situation?

Why not set the time and the place now for the meeting, and invite in organizations that may be considered representative of the West, such as the Western States Council, the Mountain States Association, California State Chamber of Commerce, California Manufacturers Association, Columbia Empire Industries, Pacific Northwest Trade Association, Inland Empire Industrial Research, Utah Manufacturers Association, Colorado Resources Development Council, Colorado Manufacturers Association, Colorado State Chamber of Commerce, and Idaho State Chamber of Commerce?

Next, appoint a committee to draw up a program—whether the first program is 100 per cent successful or not is a minor matter, because the mistakes of one year can be corrected the next. The main thing is to have the meeting and make it a stated annual affair. The big mistake of the historic Western States Council steel meeting in Salt Lake City in February, 1945, was failure to set up, right then and there, an annual conference of comparable magnitude to discuss the West's outstanding problems.



The Governor of Washington *invites You*



State of Washington
EXECUTIVE DEPARTMENT
Olympia

MON C. WALLGREN
Governor

To American Industry:

Washington is a fast growing state. We are extending our war-time gains and making great strides forward. People are hard at work building more dams, laying out new towns, preparing new land for farms.

The Columbia River is the greatest single source of electrical power in the world. With low-cost power, our wealth of natural resources, and our maritime trade with Alaska and the Orient we are establishing a regional economy unrivalled in the nation.

Enterprising business men will find here new and exciting industrial opportunities. These include processing of raw materials, fabrication of new products, diversified trades to service a growing city and farm population.

Washington State is a good place in which to live, to work, to do business and to prosper.

Mon C. Wallgren
Governor



Mon C. Wallgren

* One of a series of advertisements based on industrial opportunities in the states served by Union Pacific Railroad.

Unite with Union Pacific in selecting sites and seeking new markets in California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, Oregon, Utah, Washington, Wyoming.

*Address Industrial Department, Union Pacific Railroad
Omaha 2, Nebraska

UNION PACIFIC RAILROAD

Road of the Daily Streamliners

MAIL BOX—(Continued from page 23)

nities, and in tracing the economic, financial, and trade relations between pairs of states, one state and each of several regions, and pairs of regions. Net traffic and trade balances between states, regions, and a state and various regional groupings are shown in the report.

Not all the features of this 242-page statistical publication can be noted in a brief letter. It is believed that many of the data arranged conveniently for analysis and reference will prove indispensable aids to business executives in studying the significance of particular areas to the business opportunities of individual companies.

J. A. GUTHRIE, Director
Bureau of Economic and
Business Research
The State College of Washington
Pullman, Washington.

Development Council

Editor, *Western Industry*:

Have you considered an article on the organization and activities of the Colorado Resources Development Council? This is a newly-formed organization whose only objective is the development of our natural resources and the expansion of commerce and industry in our state? Mr. Elton McQuery is director of the Council and has offices at 301 Kittredge Building, Denver 2, Colorado.

Among other activities of the Council is one to increase the supply of risk capital available to new enterprise. It is our ambition at some future date to develop an organization similar to New England's American Research and Development Corporation.

Incidentally, there is a very good article on the organization and activities of this group in the August issue of *Kiplinger Magazine*. It is one of a series of three articles on area development activities in New England which have accomplished much to stem the flow of industrial activity from their section of the country. No doubt you will be interested in reading this entire article as our Rocky Mountain Region problem seems to be so similar in that, while they are endeavoring to retain their former activity, we are endeavoring to build ours up.

CHAS. E. BROKAW
Regional Director
U. S. Dept. of Commerce
Denver, Colorado.

(Editor's Note: *Western Industry* has devoted considerable space in its "Continental Divide" regional review to the Colorado Resources Development Council, and our Denver editorial correspondent, Henry W. Hough, participated actively in the formation of the Council.)

"A Little Too Loose"

Editor, *Western Industry*:

On page 98 of the July, 1948, issue of your magazine Mr. Schaphorst presents a column-length article on "Cooling Tower Efficiency." Although some water cooling tower manufacturers use the term "water cooling efficiency" our engineers consider it of very little value in expressing the performance results of water-cooling towers.

Another omission is the fact that we very seldom speak of our product as a "cooling tower" but insist on the full use of the term "water-cooling tower." The general thought behind Mr. Schaphorst's article was good, but it was too loosely written from a technical standpoint. He did not mention or define the commonly used terms "water cooling range" and "approach"; the latter being the difference between the cold water from the tower and the wet-bulb temperature of the ambient air.

HOWARD E. DEGLER
Technical Director
The Marley Company, Inc.
Kansas City, Kan.

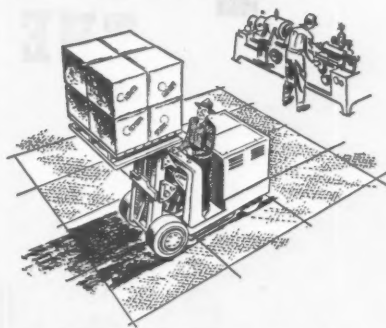
(Continued on page 27)

HOW TO—Eliminate Slipping Accidents In YOUR Plant . . . On YOUR Products

Slipping accidents cost industry thousands of dollars and hundreds and hundreds of man-hours each year. Today it is important to reduce costs and to get maximum production. AW Super-Diamond Floor Plate helps you to do this in three ways: 1. It prevents men from slipping. Wet or dry it grips without a slip. 2. Heavy traffic, oil, heat and fire do not damage it.

Therefore maintenance costs are eliminated completely. 3. It is easy to clean (water drains and dries quickly from the exclusive AW Super-Diamond Pattern), and it's easy to match. AW Super-Diamond Floor Plate has over 1001 uses in plants, and on products such as saddle tanks, lift-trucks, machine bases, etc. Do as leading Architects and Designers do and specify AW Super-Diamond Floor Plate . . . for your plant and products.

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THREE KEY MEN WHO KNOW THE "INS" AND "OUTS!"



TODAY, motor transport should be an important consideration in planning a new building or in the improvement of your present facilities. This modern means of hauling can best serve you if your building has adequate shipping and receiving docks.

Team-Play Counts

Here's where the experience of this three-man team — your Traffic Manager, your Architect and a Representative of Motor Transport — can lend money-saving assistance. Their advice in planning any modernization of your building or new building design will certainly pay dividends in the labor-saving movement of goods both "in" and "out" of your building.

Eliminate Double Handling

Perhaps your production could be stepped up by linking incoming supplies with new dock facilities tied directly to the lines themselves. Double handling of outgoing goods can likewise be elimi-

nated with proper dock location. Costly waiting time can be dispensed with, so Trucks and Trailers can deliver their full measure of efficiency.

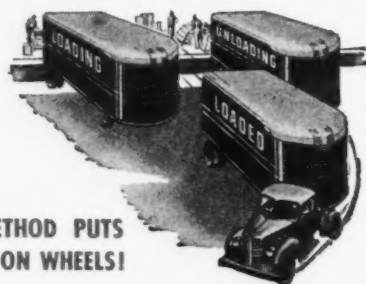
Why not analyze your materials-handling facilities and by all means put these three key men on your Planning Committee from the start.

World's Largest Builders of Truck-Trailers

FRUEHAUF TRAILER COMPANY

Western Manufacturing Plant, Los Angeles

SALES AND SERVICE — LOS ANGELES • SAN FRANCISCO
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TRAILER METHOD PUTS STOCKPILES ON WHEELS!

This method eliminates factory stockpiles by putting them on wheels and saving double handling of goods. Another saving lies in the "shuttle" method of hauling where one truck handles several Trailers as illustrated.

FRUEHAUF



TRAILERS

"ENGINEERED

TRANSPORTATION"

Hear Harrison Wood, Interpreter of World Events, Every Sunday, 12:00 Noon, Pacific Time, over ABC. Consult Your Local Paper!

Likes Turbo Supercharger Set Up

Editor, *Western Industry*:

The turbo supercharger set up as described and illustrated in your September issue looks like a very simple and practical method of demonstrating the principle of operation of the centrifugal type turbo compressor.

JAMES M. GILLESPIE
Assistant to the President
The Garrett Corporation
Los Angeles, California.

Santa Fe's System

Editor, *Western Industry*:

I believe that the Union Pacific Coal Company's safety program described in your July issue has considerable merit and unquestionably has served to arouse interest of their employees in safety. Our safety program differs to some degree, but basically is the same.

We have annual merit awards in the various groups, such as operating division, master mechanics' districts, large shops, the award in the form of a plaque being presented at banquets attended by supervisory officers and employee safety committeemen on the territory involved.

Visual education is extensively used in all groups. We have a mobile visual aid unit which is used to reach maintenance forces at outlying points not ordinarily reached at the quarterly safety meetings. We also have an annual family film program which starts at one end of our system at Chicago, ending at San Francisco. At these programs employees and members of their family are invited. Safety films of general interest, as well as sport, travel and cartoon films are shown. Door prizes are given away at these meetings and all employees are eligible to win.

Employee safety committeemen over our system number approximately 3,000. The safety department field staff is made up of 14 safety supervisors, two assistants on my system staff. Each of the field men have a certain territory approximating 1,000 miles of track to supervise, and as we employ some 65,000 men and women over our system of various occupations various methods are used in their safety education.

The program in our shops and mechanical department facilities, while fundamentally the same as that in our transportation or maintenance of way departments requires a different approach to our problem.

Goggles are furnished free of charge to mechanical department and maintenance groups whose work makes the wearing of this type equipment mandatory. In the transportation department goggles are made available at cost, although the wearing of them is not mandatory. Many other items of safety equipment are supplied where it is felt desirable and of value.

All of the safety department organization will at the end of this year be qualified to give instruction on first aid and talk on this subject at the quarterly safety meetings. In addition to the quarterly scheduled safety meetings of which there are some 400 over the system, foremen of various groups are required to hold weekly safety meetings at which safe practices applying to their work are discussed.

We, of course, have operating rules, maintenance of way rules of various kinds, rules governing safe loading of merchandise and many others, in addition to safety rules for the mechanical department forces. We have just completed a new Operating Rule book and when it is put into effect it is intended to publish a safety rule book for transportation department employees.

In an operation as large as a railroad with its varied occupations, it is not always possible to do the many things that work out successfully in smaller industries.

E. L. DUGGAN
Superintendent of Safety System
The Atchison, Topeka and
Santa Fe Railway System.

Light FOR A MILLION DOLLAR MARKET New Smoot-Holman "Educator" Improves Indirect Lighting In Schools



Manufactured
under patent
No. 2303747

Smoot-Holman's new RE 500 Educator is designed to provide "safer" light — better vision — for students in every type of classroom. The Educator's concentric rings distribute maximum effective lighting on reading and writing surfaces. The assembly of matte finished rings presents an extremely low surface brightness and eliminates the accumulation of dirt, paper wads or insects.

SIMPLE AS **A B C** TO INSTALL



MANUFACTURERS OF
FINE LIGHTING EQUIPMENT

OFFICES IN PRINCIPAL WESTERN CITIES • BRANCH AND WAREHOUSE IN SAN FRANCISCO

It's *painless* when you call us for STAINLESS



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UNITED STATES STEEL

THE WESTERN OUTLOOK...News...Statistics...

1

Wholesale prices continue upward trend in most lines, led by foods; Employment still going up too; Western population growth reflected in residential gas customers; Power shortage looked for this winter; Canning industry reports preference shown for smaller cans; Apparel trade looks better, with high priced and cheaper goods selling the best.

WESTERN employment has continued to show steady, if not spectacular gains in the non-agricultural field. Impact of the coastal tie-up of all shipping by the longshoremen's strike, coupled with the effect on industry in general of the strike of California oil workers had not been clearly indicated at the time of going to press, but it was predicted that a gasoline famine would seriously disrupt transportation if negotiations were prolonged.

Total nonagricultural employment in Washington reached the highest level in 1948, with a total of 689,000 in July, according to Employment Security Director John D. Davis. Greatest increase was in the lumber industry, working at near capacity. This and other fields had recovered from the setback caused by flood conditions. In California, Paul Scharrenberg, Director of the Department of Industrial Relations, reported employment highs in several industries, led by the food manufacturing industry with a total of 141,200

wage and salary workers, the highest peacetime July level on record. Manufacturing employment was 5 per cent above July, 1947.

Oregon's estimated manufacturing employment in July was 146,200, a report from the State Unemployment Compensation Commission revealed. It was not possible to compare this with the previous

month because of unsettled conditions caused by the Columbia River floods. In the Mountain States, all showed substantial employment gains. Utah was enjoying its usual high summer seasonal employment, with several hundred out-of-state workers imported for harvests. Nevada's manufacturing employment held steady, while New Mexico showed a gain of 900, a gain of 6,600 over the same month last year. Arizona was still 10,000 ahead of July, 1947, and Montana's non-agricultural employment was higher than in the first half of any previous year.

Commerce-Banking

July carloadings in Pacific Northwest territory for the first seven months of the year totaled 652,554 carloadings, as against 719,611 for the same period in 1947 and 631,305 in 1946. Total loadings of forest products highest since 1942. Department store sales continue to climb, more sharply in northern California and the Pacific Northwest than in southern California. Commercial, industrial and agricultural loans showed exceptional increase in the early part of August, but the growth in real estate loans has slackened to a greater extent in the 12th Federal Reserve District than the country as a whole. Relative increases in the commercial, industrial and agricultural loans for the first seven months of the year over the same period were substantial.

(Continued on page 31)

CONSUMERS' PRICE INDEX

From Bureau of Labor Statistics
100=5 yr. avg. 1933-39

	Los Angeles	San Francisco	Portland	Seattle	Denver
Oct. 15	166.5	166.5	166.5	166.5	166.5
Nov. 15	166.5	166.5	166.5	166.5	166.5
Dec. 15	166.5	166.5	166.5	166.5	166.5
Jan. 15	167.6	168.9	174.4	170.7	167.0
Feb. 15	168.1	171.4	170.7	170.7	167.0
March 15	167.4	171.4	170.7	170.7	167.0
April 15	169.3	175.8	170.7	170.7	168.5
May 15	169.1	174.3	170.7	170.7	168.5
June 15	168.8	174.2	170.7	170.7	168.5
July 15	170.3	180.3	170.7	170.7	172.5

month because of unsettled conditions caused by the Columbia River floods.

In the Mountain States, all showed substantial employment gains. Utah was en-

MANUFACTURING EMPLOYMENT

Estimated Number of Employees in Non-Agricultural Establishments—Source: U. S. Bureau of Labor Statistics

	MONTANA	IDAHO	WYOMING	COLORADO	NEW MEXICO	ARIZONA	UTAH	NEVADA	TOTAL MTN.
	1947	1948	1947	1948	1947	1948	1947	1948	1947
February	16,400	17,300	16,400	17,300	16,400	17,300	16,400	17,300	16,400
March	16,300	17,200	16,300	17,200	16,300	17,200	16,300	17,200	16,300
April	16,600	17,100	16,600	17,100	16,600	17,100	16,600	17,100	16,600
May	17,100	17,000	17,100	17,000	17,100	17,000	17,100	17,000	17,100
June	17,100	17,000	17,100	17,000	17,100	17,000	17,100	17,000	17,100
July	17,100	17,000	17,100	17,000	17,100	17,000	17,100	17,000	17,100

WASHINGTON

OREGON

CALIFORNIA

TOTAL PACIFIC

	1947	1948	1947	1948	1947	1948	1947	1948
January	162,300	172,900	121,500	122,700	697,100	704,100	162,300	172,900
February	166,100	173,000	124,700	125,300	693,700	703,000	166,100	173,000
March	169,200	173,700	122,000	121,100	692,400	700,200	169,200	173,700
April	170,400	175,300	126,800	126,800	698,600	695,800	170,400	175,300
May	174,900	152,350	117,100	130,300	693,000	696,300	174,900	152,350
June	179,300	163,400	117,100	130,300	689,300	712,900	179,300	163,400

INSURED UNEMPLOYMENT

(Under all programs; figures in thousands. From Social Security Board)

	Ariz.	Colo.	Idaho	Mont.	Nev.	N. Mex.	Utah	Wyo.	Total Mtn.	Calif.	Ore.	Wash.	Total Pacific
Feb. 7	6.3	8.8	8.0	7.1	2.5	5.8	7.9	2.0	48.4	195.2	23.1	47.7	266.0
March 6	7.1	10.3	8.1	7.9	2.5	6.0	7.5	2.0	51.4	228.9	24.0	47.1	300.0
April 3	6.6	7.8	6.2	6.4	2.2	5.4	5.9	1.5	42.0	233.3	20.5	37.6	291.4
May 1	5.5	6.2	3.7	4.0	1.9	3.5	4.3	.8	29.9	220.6	16.5	31.5	268.6
June 5	4.4	4.2	1.5	2.0	1.4	2.4	2.3	.4	18.6	193.7	11.7	25.7	231.1
July 3	4.2	4.0	.8	1.2	1.3	2.3	2.2	.3	16.3	172.4	9.7	17.7	199.8

INDEX NUMBERS OF WHOLESALE PRICES BY GROUPS OF COMMODITIES AND BY MONTHS

Bureau of Labor Statistics, Washington 25, D.C.
(1926 = 100)

Year and Month	Farm Products	Foods	Hides and Leather Products	Textile Products	Fuel and Lighting	Metals and Metal Products	Building Materials	Chemicals and Allied Products	House Furnishing Goods	Miscellaneous	ALL COMMODITIES
1948											
Jan. Aug.	199.2	179.9	200.3	148.4	130.0	154.3	193.3	138.8	141.3	123.6	165.7
January	185.3	172.4	192.8	148.9	130.8	155.3	192.7	134.6	141.8	120.1	160.9
February	186.0	173.8	185.4	149.8	130.9	155.9	193.1	136.1	142.0	120.8	161.4
March	186.7	176.7	186.1	150.3	131.6	157.2	195.0	136.2	142.3	121.8	162.8
April	189.1	177.4	187.5	150.2	132.6	157.1	196.4	134.7	142.6	121.5	163.9
May	196.0	181.4	186.8	149.6	133.1	158.7	196.8	135.7	143.4	121.4	166.2
June	194.9	188.3	189.2	148.9	135.7	162.8	199.4	134.4	144.5	120.3	168.6

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THE WESTERN OUTLOOK...News...Statistics...

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(Continued from page 29)

cially larger in Oregon, substantially lower in California, Arizona, Nevada and Utah, and about the same in Washington.

Gas

The first quarter of 1948 saw an increase of 130,315 residential customers for natural gas on the Pacific Coast, as reported by three utility companies accounting for approximately 89 per cent of the total. This is in some measure indicative of population growth. Apparently industry given interruptible service under surplus rates is trending away towards other forms of fuel, however, for the three utilities lost 255 industrial customers in the period, or —1.8 per cent in sales. On the other hand, this loss may include customers who have gone out of business.

Overall percentage figures for the West for the quarter, compared with the same period in 1947, are:

NATURAL GAS			
	Customers	Sales in Mcf	Revenues
Mountain	+11.5	+17.1	+20.1
Pacific	+6.7	+15.9	+19.2
MANUFACTURED GAS			
Pacific	—1.7	+3.4	+29.8

Commercial customers for natural gas in the Pacific states showed an increase of 5,834 in the first quarter, or 7.7 per cent. There were 690 more commercial customers for manufactured gas, and 3,340 more residential customers, but six less industrial users.

In the mountain states, reports from utilities accounting for approximately 78 per cent of the total number of customers showed 27,842 more natural gas customers than in the first quarter of 1947, 4,254 more commercial customers and 38 more industrial consumers. The change-over probably was largely from coal.

Electric Energy

California has extended its daylight savings program through the balance of the year as a means of further conserving the supply of light and power. The fact that demand has dropped off indicates that the economy idea was perhaps oversold as far as the summer months were concerned; nevertheless, supplementary steam plants are not being completed as fast as was

ELECTRIC ENERGY

(Production for Public Use—In thousands of kilowatt hours. Source: Federal Power Commission)

	Mountain		Pacific Northwest		California		Total Pacific	
	1947	1948	1947	1948	1947	1948	1947	1948
January	1,061,564	1,238,508	1,477,873	1,635,440	1,466,716	1,605,642	2,944,589	3,241,082
February	962,756	1,168,514	1,328,994	1,539,841	1,301,334	1,514,611	2,630,328	3,054,452
March	1,041,287	1,200,824	1,454,305	1,628,060	1,531,005	1,572,699	2,985,310	3,206,759
April	1,185,575	1,402,860	1,456,204	1,722,614	1,662,024	1,503,141	3,118,228	3,225,755
May	1,254,204	1,432,407	1,450,716	1,661,764	1,738,511	1,632,572	3,189,227	3,294,336
June	1,263,666	1,432,925	1,363,534	1,458,586	1,759,504	1,747,255	3,123,038	3,205,841

NATURAL GAS

(CALIFORNIA)

(Compiled by Roy M. Bauer, gas supply supervisor, Southern California Gas Company)

—Number of Consumers—				*Utilization (in thousands of cubic feet)			
	Domestic and Commercial	Industrial	Domestic and Commercial Sales	Industrial Sales	Electric Generation	Net Receipts from Producers	
1947 Avg.	2,264,203	5,615	12,978,115	10,812,647	2,609,401	27,819,226	
Apr.-June	2,286,105	5,416	9,011,093	13,555,587	4,472,142	30,407,522	
July-Aug.-Sept.	2,341,438	5,421	17,765,709	11,991,903	4,393,060	38,665,845	
1948							
January	2,380,640	5,423	28,285,107	8,573,499	5,017,424	43,791,288	
February	2,394,316	5,431	28,567,848	7,220,292	4,492,387	41,786,308	
March	2,406,643	5,437	27,126,578	9,223,591	3,727,824	42,412,284	

*Utilization figures do not include company use, storage, and unaccounted for.

FREIGHT

Cars of revenue freight, railroad carriers in 11 Western states.

(Compiled from Assn. of Am. R.R. weekly reports)

	Carloadings		Received from Eastern Connections	
	1947	1948	1947	1948
January	480,719	472,567	250,315	250,104
February	509,715	463,924	288,172	271,370
March	656,920	600,715	350,527	313,850
*April	522,144	688,311	279,392	356,101
*May	714,982	718,618	348,892	358,714
July	755,983	100,086	331,613	271,766

*5-week period, †Incl. 4 weeks of following month.

BANK LOANS

Industrial, commercial and agricultural

(In millions of dollars)

From weekly reporting member banks of Fed. Res. System in 7 western cities: L.A., S.F., Portland, Seattle, Tacoma, Spokane, and Salt Lake.

(Average of Wednesday reports)

	1948
February	1,999
March	2,000
April	1,992
May	1,983
June	2,033
July	2,045

BANK DEPOSITS

(In millions of dollars—adjusted)

Daily average month, all member banks in 12th Federal Res. Dist. Demand deposits excluding U. S. Gov't deposits, cash items in process of collection, and interbank deposits.

	1948	Net Demand Deposits	Time Deposits
February	8,836	8,836	6,044
March	8,685	8,685	6,065
April	8,676	8,676	6,036
May	8,720	8,720	6,012
June	8,777	8,777	6,019
July	8,735	8,735	6,026

Steel

Verbal fireworks galore, set off by steel users, followed the action of Henry Kaiser in increasing prices for Fontana steel by an average of \$30 a ton, but otherwise nothing much happened, for customers need steel at any price today. Repair work on the Fontana blast furnace was expected to be complete by October 1, and meanwhile the mill was able to lay aside a little scrap, also a precious commodity in view of the

(Continued on page 33)

WHOLESALESALES

In thousands of dollars. Percentage changes are from corresponding month of preceding year. From Bureau of the Census.

MOUNTAIN

	Automotive Supplies	Change	Electrical Goods	Change	Furn. and house furn.	Change	Groc. and food exc. farm prod.	Change	General Hardware	Change
Jan.	476	0	2,712*	+46	406	+9	1,442	....	....	....
Feb.	676	—1	2,808	+28	....	+20	1,568	....	....	....
March	631	—6	3,390	+34	395	+20	2,055	....	....	....
April	789	0	3,657	+29	....	....	....	2,511	+26	....
May	284	+1	3,412	+12	....	....	....	2,313	+8	....
June	685	+17	3,832	+25	336	+28	....	2,356	+19	....

	Automotive Supplies	Change	Electrical Goods	Change	Furn. and house furn.	Change	Groc. and food exc. farm prod.	Change	General Hardware	Change
Jan.	1,719	—18	10,858*	+31	1,634	+9	3,475	....	6,131	+6
Feb.	2,401	—19	11,542	+22	341	+20	3,289	....	7,277	+2
March	2,601	—16	13,550	+41	285	+42	2,889	....	8,626	+10
April	1,949	—15	12,546	+21	281	+55	5,215	....	7,414	+4
May	2,687	+4	12,587	+15	281	+6	6,984	....	8,096	+3
June	2,756	+2	12,557	+11	239	+26	5,129	....	8,040	+8

*Full-line wholesalers.

INDEX OF DEPARTMENT STORE SALES

Index numbers, 1935-39 daily average=100 with seasonal adjustment. Compiled by Federal Reserve Bank.

	Total 12th Fed. Res. Dist.		Southern California		Northern California		Portland		Western Washington		Eastern Washington and northern Idaho		Utah and southern Idaho		Phoenix	
	1947	1948	1947	1948	1947	1948	1947	1948	1947	1948	1947	1948	1947	1948	1947	1948
January	314	340	338	373	275	291	301	352	330	349	328	334	365	380	411	457
February	311	319	341	365	267	282	301	329	313	313	312	291	343	321	419	441
March	319	331	339	374	281	283	300	318	336	336	329	341	366	331	432	448
April	320	353	350	400	282	303	292	335	334	349	324	348	355	386	421	482
May	329*	356	343*	404	292	313	315	339	338	343	329	338	340	365	421	484
June	334	372	365	422	295	328	328	350	340	363	337	390	343	357	420*	459

*Revised



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THE WESTERN OUTLOOK...News...Statistics...

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(Continued from page 31)

approaching end of ship wrecking operations on the Pacific Coast. By the turn of the year coast mills may be in a critical position for scrap, although the return of 250,000 tons from Germany may result in less scrap being drawn off the Coast for use in mills elsewhere in the country.

Colorado Fuel & Iron Corporation has announced that it will switch over to the mill basing system of pricing.

Allocations of steel to the government's programs are expected to increase; 2,000,000 tons have been allocated already, about 5 per cent of the total national output.

One of the latest price advances has been galvanized pipe, due to higher zinc prices.

Coal

Intermountain coal production hit its summer slump during August this year, with most commercial mines operating four days per week. The rate of production was expected to start climbing early in September.

Oil

Oil outlook for this fall and winter is somewhat brighter than last year, despite summer motor travel which used about 10 per cent more gasoline than 1947's all-time high record, and a 20 per cent hike in aviation gasoline requirements caused by the Berlin air lift.

U. S. crude output is hitting new highs again and has been averaging about 350,000 barrels a day more than last year. Drilling and exploration of new areas is setting new all-time records. In June, 2314 rotary drilling rigs and 623 geophysical and core drill crews were working.

The industry will spend about half a billion dollars this year on refinery expansion, adding several hundred thousand barrels daily to capacity. API estimates, however, that refining may be a serious bottleneck if present demand continues. Steel shortages will delay the program, just as it is holding back construction of pipelines which would do much to rectify many spot shortages throughout the nation.

Per capita consumption of petroleum is 60 per cent higher than in the pre-war period. Coal has lost its dominant position as a source of energy. Anthracite coal consumption, per capita, has fallen 15 per cent while natural gas is up 80 per cent and bituminous coal 25 per cent. Biggest factor in the trend to oil is dieselizing of railroads. The lines are using ten times as many diesel-electric locomotives, and U. S. homeowners have two-thirds more residential oil burners in use than at the end of 1939.

A committee of the House of Representatives is meeting in Mexico City with Mexican government officials, seeking to iron out a quarter-century's difference over U. S. oil operations in that country. Outcome may be an amicable agreement to let U. S. companies rebuild Mexico's oil industry.

Government efforts to settle the squabble about how much steel the oil industry shall get, and where it shall be used, have fizzled out. Allocation was proposed to the steel industry committees but turned down. The oil industry is split into factions, one of which wants priority on steel for development in the Middle East, another insisting on pushing Latin American exploration first. Domestic needs add to the pulling and hauling, with the end result that nothing has been accomplished.

When Richfield found it couldn't get delivery until 1952 on pipe needed for a line to link its huge new discovery, Cuyama Valley, to refineries in the San Joaquin Valley, a solution was

IRON AND STEEL

Western Area of the United States
From American Iron and Steel Institute (in net tons)

	Pigiron Output	Percent of Capacity	Steel Output	Percent of Capacity
February	198,927	96.2	379,291	94.5
March	186,966	84.5	395,781	92.1
April	133,030	62.1	310,108	74.5
May	187,501	84.5	398,905	92.9
June	202,796	94.6	397,414	95.5
July	196,608	89.0	410,244	95.7

Alloy Steel

	Output	Carbon Ingots, Hot Topped*
February	4,888	4,850
March	7,286	5,447
April	4,806	4,255
May	7,173	9,341
June	6,948	3,672
July	5,445	6,638

*Included in total steel.

BITUMINOUS COAL AND LIGNITE

(In thousands of tons. From Bureau of Mines)

	(Colo.-N. Mexico)	(Wyoming)	(Utah)	(Montana)	(Wash.-Alaska)
January	871	1947	1948	1947	1948
February	810	860	894	778	770
March	768	419	717	341	753
April	431	370	482	378	514
May	485	563	557	519	653
June	520	505	596	477	581

PETROLEUM

(California, Oregon, Washington, Arizona, Nevada)

(From Bureau of Mines)

TOTAL DELIVERIES
(Thousands of barrels daily)

	CRUDE PRODUCTION (Barrels, daily avg.)	GASOLINE	GAS OIL & DIESEL	HEAVY FUEL OIL	ALL PRODUCTS
January	930,933	1947	1948	1947	1948
February	933,622	313	323	177	162
March	29,138	320	313	142	204
April	28,300	304	334	117	170
May	29,335	336	357	125	159
June	28,466	332	384	85	123

COPPER

(Short tons. From U. S. Bureau of Mines)

	ARIZONA	UTAH	MONTANA	NEW MEXICO	NEVADA	TOTAL WEST'N STATES
January	1947	1948	1947	1948	1947	1948
February	30,700	31,235	22,500	22,360	5,350	5,000
March	29,450	29,300	21,800	21,980	4,732	5,652
April	32,000	31,325	24,250	23,075	5,500	5,640
May	30,200	31,355	23,500	23,400	5,370	5,471
June	31,000	30,815	25,000	24,120	4,800	5,450

found when someone managed to scare up 33 miles of "invasion pipe" left over from the U. S. Army's invasion campaign in Italy. The 20-foot lengths were screwed together in place in only 14 days.

Canning and Packing

New pack prices for cling peaches run from \$2.52 to \$2.85 a dozen for No. 2½ choice halves as against \$2.35 to \$2.45 last year, and it is generally believed the new pack will move with little trouble, although the need for more turnover capital than before the war may sharply test the liquid position of canners.

To meet a growing preference by housewives for smaller cans of sliced peaches, a new size, 303, has been brought out which may eventually replace the No. 2 can.

Northwest Cannery Association reported stocks on hand as of August 1 as follows, on No. 2½ can basis: purple plums, 445,641 cases; freestone peaches, 73,883 cases; pears, 218,642 cases.

Alaska salmon pack up to Aug. 14 was about a million cases short of the seven-year average up to that point in the season. Total was 2,756,994 cases. California's sardine pack is better than last year, but continues poor.

Apparently the cling peach pack was due to run between 15,000,000 and 16,000,000 cases, about the same or a little more than last year, with the fruit cocktail pack due to dip a little below 1947.

Government purchase plans for dried fruit will total about 200,000 tons, of which raisins will constitute probably 85,000 tons; California

prunes 85,000 tons, Northwest prunes 900 tons, figs 12,000 tons, apricots 6,000 tons, peaches 5,000 tons, pears 1,500 tons, apples 5,500 tons.

Building Materials

The first leveling off of building costs in the West is seen in the American Appraisal Company's construction cost indexes for June, which show Denver and San Francisco as having the same costs as in May, and the latter having dropped two points from a peak of 411 in April. Seattle, however, climbed one point after having stood still from April to May, while Los Angeles bounced upwards from 464 in May to 479 in June. These indexes, as shown below, reflect the trend in each city, but not the relative position of cities to each other.

	Decontrol November 1946	Apr. 1948	May 1948	June 1948
Denver	326	433	435	435
Seattle	351	502	502	503
San Francisco	323	441	439	439
Los Angeles	344	464	464	479

Chemicals

Oil's by-products are growing. Much of the \$43,000,000 expansion program under way by Shell Oil includes such chemicals as secondary butyl alcohol and methyl ketone. The world's first commercial synthetic glycerine plant is rapidly nearing completion near Houston. Shell is investing \$8,000,000 in this process, which was developed in its Emeryville, California laboratories and requires only salt, water, and petroleum as raw materials.

(Continued on page 35)

"More Efficient Operation" **"30% Less Oil Consumed"** **"Lower Maintenance Cost"**



Neil H. Kime (left), Superintendent of the Tacoma Municipal Belt Line Railway, and C. A. Erdahl, Commissioner of Public Utilities.

That's the report of Neil H. Kime, superintendent of the Tacoma Belt Line Railroad, after three years exclusive use of Delvac Oil, Mobiloil and G. P. greases. Four diesel locomotives handle all Tacoma's tide flat freight, about ten thousand cars every month.

In this severe service, Delvac Oil stands up under extreme heat and pressure and keeps engines clean and running smoothly. Less time in the shop, and elimination of

reduction gear trouble are other benefits from the use of G. P. products.

Whatever your powered equipment may be, it will pay you to investigate G. P. Lube Engineering Service, and G. P. Products. An experienced lubrication engineer will make a complete survey of your equipment, as a basis for time and money-saving recommendations. Why not call your nearby distributor today?



GENERAL PETROLEUM CORPORATION
 (A Socony-Vacuum Company)



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October

(Continued from page 33)

A supplemental export quota of 4300 tons of caustic soda for the third quarter of 1948 has been established to assist the Colorado Fuel & Iron Corporation, operating an Army standby plant at Denver, to dispose of certain stocks of caustic soda now held in storage.

The Office of International Trade announced that this action was taken at the request of the Army to keep the plant in condition for an immediate resumption of production in event of emergency. OIT said the plant had been unable to compete in the domestic market because of distance from raw materials sources, and that the customary price criterion used in considering applications for export licenses would not be applied in this case, in order to cooperate with the national security program of the army.

Agricultural chemicals seem to have had rather a spotty year, but 24D for wheat and other grains exceeded past totals, and tetraethyl pyrophosphate moved in good quantity in the Pacific Northwest.

Columbia Metals Co., with plants in Oregon and Idaho, and Farm Service Co. of Oakland are two of the four chemical firms in the country participating in an initial allocation of 2,655 tons army-produced anhydrous ammonia to supply their needs for fertilizer manufacturing. This was for August and September delivery, under a provision of the Foreign Aid Appropriations Act requiring domestic distribution of 10 per cent of the anhydrous ammonia produced for or by the army.

APPAREL

(In thousands of dollars)

Total Women's, Misses' & Juniors' Outerwear

	Los Angeles	San Francisco
April	7,118	1,731
May	4,505	1,731
June	4,188	1,383
July, August, September	23,245	6,899
Oct., Nov., Dec.	24,948	6,844
Jan., Feb., March	30,173	7,897
Men's		
Overalls		
(thousands of dozens)		
California	24.7	100.1
December	22.0	103.3
January	34.4	90.7
February	26.8	85.3
March	33.0	109.6
April	29.0	92.6
Men's Wool		
Work & Dress		
Trousers		
(thousands of units)		
California	100.1	100.1
December	103.3	103.3
January	90.7	90.7
February	85.3	85.3
March	109.6	109.6
April	92.6	92.6

Apparel

Apparel trades in the West report that business is slightly better than it was six months ago. Inventories have been further rid of "cat-and-dog" type merchandise, so that although hand-to-mouth buying persists, some restocking and filling out of lines is necessary. For the same reason, re-order business generally is enjoying.

Curiously, two classes of apparel are good, brisk demand: high-priced, high-style goods, and very cheap items. Budgetary difficulties seem to be forcing the great middle class of American families to seek cheap substitutes for the better-grade, staple products they traditionally have preferred.

National showings of one of the West's specialties, resort and cruise wear, shortly are to set the pace for manufacture of next summer's goods in this field. Reception of these advance models customarily governs the lines that will be put into large-scale production.

Furniture

Furniture markets across the country were somewhat slower this summer than were anticipated. And this situation was reflected in

the semi-annual show at Los Angeles. Prices were firm, but with no appreciable increases. While the overall situation was not as stimulating as it might have been, certain lines of modern furniture and French Provincial have been moving with some rapidity.

Last month saw the creation of California Home Fashions which is a group of manufacturers of California modern furniture. CHF will devote itself to the task of publicizing to the nation the advanced styling, design and workmanship of local manufacturers of modern furniture.

The labor relations picture of the industry in southern California is somewhat clouded by the absence of a settlement between a large segment of employers and the United Furniture Workers, Local 576 (CIO). This impasse has been responsible for the creation of another local of the CIO and another local of the AFL, thus adding to the confusion, which finds our different unions claiming to represent furniture woodworkers. In spite of these conditions, July saw the addition of at least six new factories to the southern California scene.

Lumber

Douglas fir production and shipments for the first seven months of the year exceeded last year by a considerable margin, but Western pine production and orders were off 1/2 per cent and shipments 1 per cent. Threatened shortage of freight cars may reduce late shipments.

HOUSEHOLD FURNITURE

Manufacturers' Shipments—11 Western States
From Bureau of the Census
(In thousands of dollars)

	Upholstered Furniture	Other Household Furniture	Total
3rd quarter, 1947	\$11,047	\$15,929	\$26,976
4th quarter, 1947	13,336	21,098	34,434
1st quarter, 1948	10,633	20,739	31,372

Pulp and Paper

Pacific Northwest mills face the possibility of a shortage in pulpwood supply this winter, as the result of consumption considerably out-running deliveries. For the first half of the year, consumption of 1,659,000 cords exceeded deliveries of 1,302,000 cords by 30 per cent. Part of this was due to the May flood, when consumption reached 286,000 cords, while deliveries fell off to 173,000 cords. Midyear stocks of 596,000 cords were 37 per cent under the late 1947 peak.

SOFT PLYWOOD

From Bureau of the Census
(In thousands of square feet)

	1947	1948
January	140,058	159,395
February	129,622	156,285
March	139,670	185,716
April	147,008	164,862
May	142,409	150,717
June	140,147	150,187

PULPWOOD

(Pacific Northwest)
(Cords of 128 cu. ft., roughwood basis.
Source: Bureau of Census)

	Receipts	Consumption
January	235,036	280,630
February	208,941	273,886
March	232,880	299,217
April	197,668	276,231
May	170,456	286,221
June	253,075	242,906

LUMBER

(In thousands of board feet)

From West Coast Lumbermen's Association (Douglas Fir, Sitka Spruce, Port Orford Cedar, West Coast Hemlock, Western Red Cedar):

Year through	1946	1947	1948
July	4,635,703	4,868,020	5,052,620
From Western Pine Association figures (Idaho White Pine, Ponderosa, Sugar Pine and associated species):			
Year through July		1,623,832	1,612,651
Production			

From California Redwood Ass'n figures (includes redwoods and whitewoods):

Year through July	1948
Production	256,813

Sugar

Cane sugar refining operations in California were considerably reduced when Western Sugar Refinery at San Francisco discontinued operations on August 30, as a result of the Spreckels interests retiring from the cane business. The refinery has been offered to C&H, who had not reached a decision to buy at this writing, and the Spreckels plantation interests in the Hawaiian Islands have been sold to C. Brewer & Co. The Hawaiian cane crop promises to be about the same as last year.

The beet sugar season in California this year is one of the latest in history. Estimated beet sugar crop for the country dropped from 10,256,000 tons as of July 1 to 10,199,000 tons as of August 1, but California reversed the trend, its production being estimated at 17 1/2 tons an acre. This is a ton less to the acre than last year. For the whole country the crop is expected to be 8 per cent under 1947.

Flour

Flour mills in the West have been grinding a little under last year while the second largest wheat crop in the history of the Pacific Northwest was being harvested. Buying continues on a hand-to-mouth basis because the bakers mostly feel the price will continue downward. Mill feeds also have been down, with little sign of strength.

Trading in the western hemisphere has become much freer with the ending of Office of International Trade licenses and the substitution of general licenses on August 26. This governmental step opens up the market in the Philippines, to which the bulk of the shipments will go in the form of flour. Production Marketing Assn., a government agency, is buying a sizable quantity of flour for overseas shipments, and some of this will come from the Pacific Northwest.

Aluminum

Although aluminum continues to be well oversold, the three leading manufacturers are continuing to press their sales efforts so as not to have a repetition of the situation in the spring of 1947, when demand slumped badly and plants were only operating at 50 per cent of capacity. Permanente now hopes to have its foil plant imported from Germany in operation the first half of next year, and Reynolds has announced transfer of operations to the newly opened Grand Rapids plant because of lower costs, and also because of strike conditions at Phoenix.

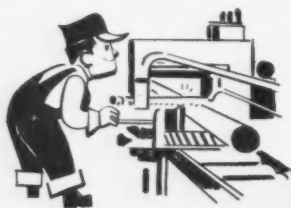
Cement

Mills continue to be pressed to their utmost to meet the demand, and a definite shortage has been reported from both the Los Angeles area and the Pacific Northwest. Mills have increased their capacity considerably by stepping up their efficiency in some cases, and in others by running extra shifts, but in general are hoping to avoid a repetition of the over-expanded situation in which they found themselves in 1920.

KEY FEATURES OF A COMPLETE STEEL SERVICE



Some types still short, but over-all stocks in 13 Ryerson plants are probably the nation's largest.



Accurate cutting to your order is assured by modern Ryerson equipment.



You get quick delivery anywhere, because the network of Ryerson plants stretches from coast to coast.



Prompt personal steel service on all orders, large or small, is a Ryerson tradition.



Over a Century of steel experience means more know-how applied to your steel problems.



Added Ryerson service includes a chart to guide heat treating sent with alloy shipments.



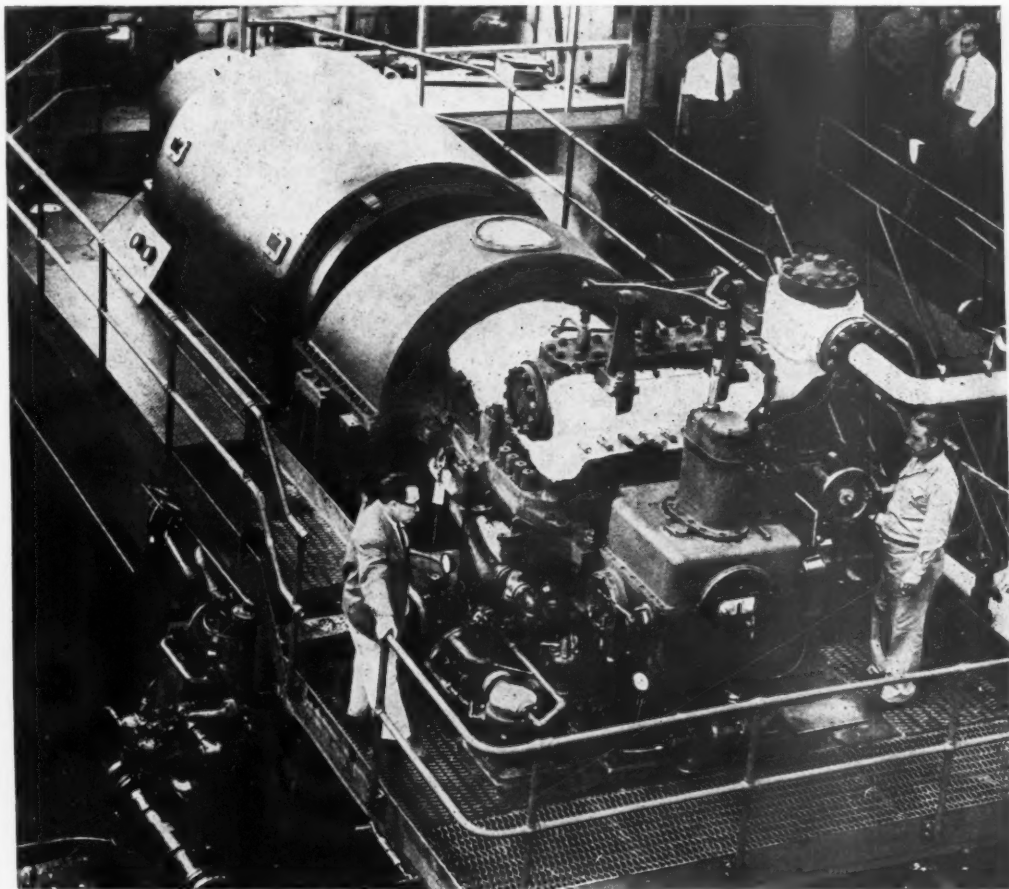
PRINCIPAL PRODUCTS

BARS—carbon & alloy, hot rolled & cold finished
STRUCTURALS—channels, angles, I & H beams, etc.
PLATES—sheared & U. M., Inland 4-Way Floor Plate, etc.
SHEETS—hot & cold rolled, many types & coatings
TUBING—seamless & welded, mechanical & boiler tubes
STAINLESS—Allegheny metal sheets, plates, bars, tubes, pipe, etc.
REINFORCING—bars & accessories, wire mesh, etc.
BABBITT—and phenolic laminated bearing material
MACHINERY & TOOLS—metal working & boiler shop

RYERSON STEEL

Joseph T. Ryerson & Son, Inc. • Los Angeles Plant: Box 3817, Terminal Annex. • San Francisco Plant: Box 188, Emeryville.
 Other Plants: Chicago, Milwaukee, Detroit, St. Louis, Cincinnati, Cleveland, Pittsburgh, Philadelphia, Buffalo, New York, Boston

PICTURE OF THE MONTH



THE INDUSTRIALIZED WEST . . . Brighter lights will soon gleam from the lamps of Mexico on power furnished by this huge 5,000 kw. generator, first of 24 such units now under construction at the Sunnyvale plant of the Westinghouse Electric Corporation. Power plant, including steam turbine, generator, condenser, and controls, weighs 86 tons. Six have been bought by the Mexican government; 18 others will go to South America, India, and China.

To Make Money On a Job, Analyze Each Single Step First

By ROBERT PORTER

First of three articles dealing with production programs. This article is devoted to planning; the second will discuss scheduling, the third article control.

EVERY manufacturer does a certain amount of planning before commencing work on a new job, but it is surprising how often the planning falls short of that necessary to avoid delays and unpleasant surprises after the job is started.

The first step towards the manufacture of any technical product is to find out all there is to know about the product and every element of its production. Sooner or later one or another member of the or-

ganization will have the necessary information, but it makes a lot of difference in time, cost, and results whether this information is accumulated and studied as the first step in planning the job, or shows up

from time to time during the progress of the work.

Step Number One

Break the job down into its smallest pieces, then study each piece, not in a general way, but in a very specific and serious manner because the future of the entire production program hinges on how thoroughly this first step of planning is performed. Whether it is proposed to build 5000 fighter airplanes, or 100,000 simple



ROBERT PORTER

Mr. Porter, a Los Angeles business consultant, has served many important firms as a consulting and industrial engineer. His past business connections include the following:

Vice-president and assistant general manager, Jaxon Steel Products, Division of General Motors Corp.; General Motors Corporation, special assignment; Sales manager, Cowan Truck Company, Holyoke, Mass.; Sales manager, later general manager, Kinner Airplane & Motor Co., Glendale, Calif.; General manager, Liberty Tool & Gauge Co., Providence, R. I.; General manager Aircraft Division, Willys-Overland Company; Production manager, Los Angeles Shipbuilding & Dry Dock Company, Civilian consultant, U. S. Bureau of Aeronautics, Production manager, Ordnance Division, Consolidated Steel Corp., Los Angeles.

assemblies, the procedure is precisely the same, viz., take one unit, break it down into its smallest pieces, then study the bits one by one and record the results of the study of each bit.

All of the operations described in the accompanying list should be recorded in sequence, thus providing an operation and routing sheet which contains all of the information to proceed with the job.

At the bottom of the operation sheet, show a summary of the operations, such as:

- (a) Total time on No. 4 milling machine, so many minutes.
- (b) Total time on two-spindle bench drill.
- (c) Total time on 10-ton capacity press.
- (d) Total time bench work.
- (e) Total man hours on assembly, etc.
- (f) Total man hours on inspection.

Here then is the entire story of this one piece, just what machine tools are to be used and how long each will be required. Just what jigs, fixtures, special cutters, gauges, etc., are needed and an estimation of the time required to design and make these special tools and fixtures. The analysis must be thorough and complete before

it is possible to safely proceed with the production program.

The next step, after the analysis of every one of the pieces has been completed, is to total all of the summaries, thus providing a tabulation showing exactly how many hours are required on each type of machine; exactly how many holes of each size must be drilled in steel and how many in aluminum. How many drills will be required to drill holes in aluminum and how many for steel.

This avoids the waste of having to drill holes in aluminum with drills designed for steel because the special drills for aluminum were not foreseen and ordered in time. Information is now available as to how many special and how many standard milling cutters are needed for steel and how many for aluminum, and how many hours are required for the design of tools,

jigs, fixtures, gauges, also how many man hours are required to design and fabricate the tooling equipment.

The total of the operation sheet summaries tells how many man hours of bench work, lay-out work, machine work, floor work, inspection, and material handling will be needed per unit of production, with the result that one can determine exactly how many men must work on each shift to produce a given quantity, also how many surface plates, benches, files, scrapers, tote boxes, and vises will be needed. How much floor space—in other words, all the information needed to provide the men and equipment necessary to do the job in the time in which it must be done. The guess work has been removed.

All of the questions, how many men, how many superintendents, how many assistant superintendents, foremen, assistants

ANALYZE THE JOB FIRST

To produce quickly and without waste of time, money or material, the following information is essential, and to facilitate the production study the information must be in logical order.

- (a) Drawing number.
- (b) Description of the piece.
- (c) Kind of material from which the part is to be made.
- (d) Number required per unit and total required.
- (e) Should the piece be subcontracted or should plans be made to produce in your plant?
- (f) What kind of machine should be used to make the piece? Describe exactly the type and size of machine best suited for the job. If the machine recommended is not available, what machine can be substituted and how would the substitution affect production? Describe in detail the type and size machine you intend to use.
- (g) How many operations; describe each operation fully, such as milling surface, or drill and countersink four 3/16" holes, or blank and pierce, heat treat, inspect, etc.
- (h) Describe the special tools, jigs, fixtures, cutters, drills, gauges, etc., required to produce this one piece, and estimate the man hours and machine hours required to perform each and every operation.
- (i) Describe the standard tools, such as machine vise, angle plate, standard brake, etc., to be used in machining or forming the piece.
- (j) Then establish the standard time for each machine operation and for each inspection operation, also bench time and assembly time in connection with making each piece and each sub-assembly and each assembly. Don't guess at standard time—figure it accurately.



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SUMMARY OF OPERATION SHEETS IN MAN HOURS

Date: September 3, 1948

No. of Sheets 1

Sheet No. 1

Drawing #4. Name & Number of Part—Complete Machine #4

Part No.	Inspect	Layout	Plane	Drill	Mill	Burr	Sub-Assembly	Assembly
25	.45	1.00	6.15	.25	—	.25	—	—
31	.20	—	—	.25	.50	.10	—	—
33	.12	—	1.00	.10	.33	.10	—	—
34	.10	Purchased Item						
35	.10	Purchased Item						
Final Assembly of Machine #4	.25							2 hrs.
Total Man Hours								
Per Unit	1.22	1.00	7.15	.60	.83	.45	—	2 hrs.

COMBINATION OPERATION AND ROUTING SHEET

Date: September 3, 1948

No. of Sheets 1

Sheet No. 1

Drawing #25. Name of Part — Machine Base

Operas'n Number	Description of Operation	Type of Machine and Number	Man Hrs. Per Piece	Tooling Drawing Number Description
1	Inspect Grey Iron Casting	Surface Plate	.20	Standard Inspection Equip.
2	Layout for Machining	Surface Plate	.50	Standard Layout Equip.
3	Plane Base (bottom)	Small Planer #2	2.10	Standard Planer Tools
4	Plane Base (top and front surface, also center clearance)	Small Planer #2	4.05	Standard Planer Tools and checking gauge #246
5	Inspect	Surface Plate	.25	Standard Inspection Equip.
6	Drill & tap 6 - 5/8" holes Route to assembly dept.	Radial Drill	.50	Drill Jig #375

foremen, milling machine operators, bench hands, inspectors, etc., are answered in the above summary. The personnel department can be advised just when these various classifications of help will be needed and the head of the personnel department in turn, can advise management how much of this help can be secured through the normal channels and how much will have to be trained. Definite arrangements can then be made to train the help and have same available when needed.

How very simple, so simple that it is hard to realize that many substantial concerns start a production program without first thoroughly completing the detailed analysis outlined above. Oh, yes, sooner or later they go through all of the motions, but the point is that the time to go through these motions is at the inception of the job; in other words, the above is step number one.

It is a good idea to have operation sheets made out by a committee consisting of the

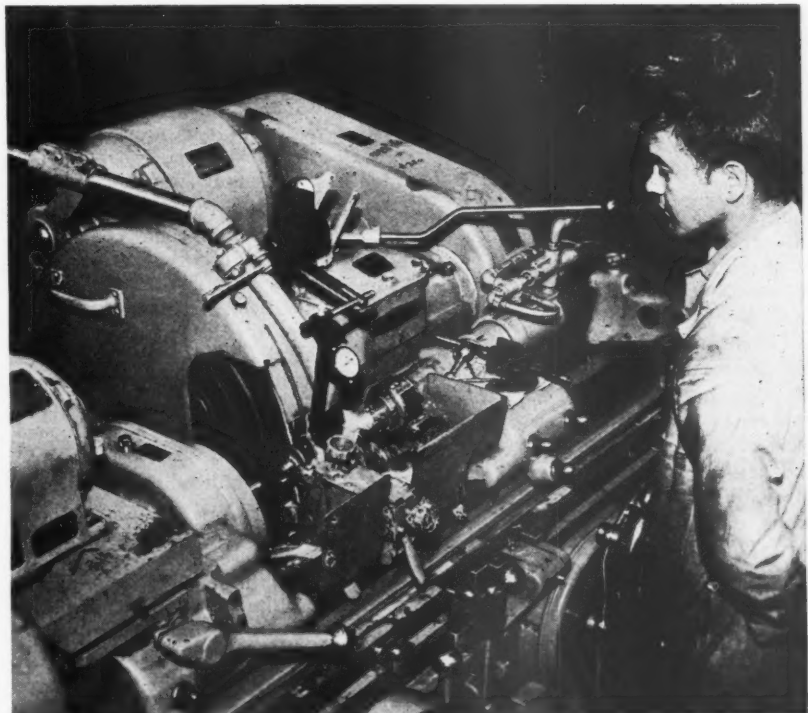
* Operating time on a machine like this grinder can eat into expected profits if production is started without proper planning.

man in charge of standards, who establishes the standard time for each operation; the master mechanic who determines the type of machine on which the job is to be performed; the foreman of the shop in which the work is to be done, as he should be in full accord with the standard time, the tooling and the methods; the tooling engineer who determines the tools, jigs and fixtures needed for the job, also the time required to design and make them and the chief inspector who usually can make valuable suggestions regarding essential gauges and inspection equipment.

It is also helpful to have a good workman from each department of the shop sit in on the consideration of parts to be made in that particular shop. These men should initial each operation sheet indicating that they are fully in accord as to the methods to be used, the equipment to be used, and the time necessary to make the piece.

Now the operating executives are in a position to present management with the entire production program, just how much money must be spent for new equipment, how much time and money will be required for the tooling program, how much help will be required to do the job and how much of the help must be trained. How much floor space and facilities will be needed to accommodate the production and production control personnel.

A machine loading chart is necessary to support any request for additional machinery or equipment and, what is most important, a date upon which each step of the program can be completed and the man hours of each classification needed to meet the production schedule.



Two-Fold Problem: Salt-Free Water Supply, Waste Disposal

Proximity to Pacific adds to water supply problem at Columbia Steel's Pittsburg mills; recirculation of canal water cuts requirements by 85 per cent; polluted water will be carried out to sea in barges.

INDUSTRIAL WASTE disposal as a means of conserving water supplies present varying problems for different industries, and one of the best ways of grasping the difficulties involved and the effort required to reach practical solutions is to examine the situation as it affects a few typical manufacturing establishments.

The complexities of industrial waste disposal as an over-all problem were outlined in the September issue of *Western Industry* by Herbert C. Davis, president of the California Association of Production Industries. This organization was formed to coordinate the action of industries, cooperate with public groups who are conducting state-wide studies, and educate the public as to the results of a program dealing with waste disposal.

Many of the ramifications have been brought to public attention in testimony given at recent hearings by the Assembly Interim Committee on Water Pollution and Industrial Wastes by representatives of various industries. It was pointed out at these hearings that the tremendous growth of population and industry in the state has caused these problems, and that livelihood of many thousands of citizens depends on intelligent attention to the situation.

Columbia Steel Company is one of the typical examples. It has grown from a small foundry at Pittsburgh employing 60 workers in 1910 to the most diversified plant for the manufacture of semi-finished and finished steel products west of the Mississippi River. It has several departments, each virtually a small factory in itself. Employment by the end of this year for Columbia at the two California plants at Pittsburg and Torrance is expected to exceed 5,900, a growth of 250 per cent since 1920 and more than 60 per cent since 1930.

Its products are woven deeply into the

fabric of every-day life of other industries and the entire community.

To get the water disposal picture in mind, it is desirable to view the operations of the various units or mills at Pittsburg. They may be briefly described as follows.

1. At the No. 1 Open Hearth Shop and Foundry, molten steel is produced from scrap and pig iron by the open hearth or electric furnace process and is then poured into moulds, cooled, heat treated and finished to yield steel castings.

2. No. 2 Open Hearth Shop makes ingots of steel in open hearth furnaces exclusively for further processing at the Rolling Mill and in other units.

3. The Rolling and Rod Mills reheat this steel and pass it between rolls to obtain the desired size and shape. In these mills are manufactured semi-finished steel for the Wire Mill as well as finished products such as small rounds, squares, angles, etc., concrete reinforcing bars, and punched and sheared railroad tie plates for sale to the trade.

4. The Wire Mill is equipped to process steel in a variety of ways including pickling to remove the scale formed during the rolling operation, heat treating, drawing through dies to reduce the size, galvanizing, and fabricating into special products. The final products for market consist of coiled wire in many sizes and grades, nails, bale ties, fence and netting and barbed and twisted wire.

5. The Rope Mill fabricates wire into finished rope and strand.

In the Pittsburg plant, water from the river is utilized generally whenever possible; however, its high salt content during a part of each year precludes its use in applications where it would come in direct contact with the in-process steel or with the external surfaces of the mill rolls and similar facilities, because salt water has a

damaging effect on both equipment and product.

Therefore, use of river water is largely confined to the cooling of steel parts of the furnaces which are subjected to high temperature, the air compressors, the heat exchangers, and the like. The river water used for these cooling purposes is pumped from a nearby slough at the pumping station, circulated through the equipment and then returned by the plant sewer system directly to the river. The consumption of river water is approximately 2,500,000 gallons per day.

The remaining mill units which require fresh water for boiler feed and process purposes were supplied from wells on the plant property until the completion of a portion of the County Canal in 1940, at which time canal water was substituted for well water and the wells were for standby purposes only. A total of 15 wells have been drilled at the plant. These became progressively salt and it was indeed fortunate to have had canal water available. Water is delivered by gravity from the canal to the plant pump station in an underground line and than is distributed to the various boiler feed and other uses through a separate fresh water system.

Canal water is used mainly at the Rolling and Rod Mills where it is sprayed on the mill rolls, the bearings, and onto the hot steel during the rolling operation. At the Wire Mill this water is needed for rinsing the in-process steel after the scale has been removed by pickling and is used for cooling the wire drawing machines, the power rectifiers and certain furnace parts. One main air compressor also utilizes canal water as a coolant. Several of these latter water requirements could be met satisfactorily with river water but are served by the canal system because of some distribution limitations.

Water demand at the Rope Mill is negligible.

Total daily requirement for canal water is about 13,000,000 gallons, but by providing two separate recirculating systems at the Rolling and Rod Mills, the actual water demand from the canal, including makeup for these recirculating circuits, is reduced to about 2,000,000 gallons per day. Each recirculation installation has a clariflocculator, which together with chemical treatment not only removes the scale and any grease flushed off during the rolling of the hot steel in the mills, but also produces a water for reuse of a quality comparable to canal water.

Waste water from the plant is returned to the slough through two outfall sewers, one serving the mills on the west side of the plant site and another for those on the east side. The approximate volume of water passing through both of these sewers is 4,000,000 gallons daily, of which 3,000,000 gallons or 75 per cent has circulated for cooling purposes only. Included in this flow is about 12,000 gallons of spent pickle liquor; however, the dilution of this material is so great that it has a negligible effect on the pH of the No. 1 outfall. Both outfalls together also carry along with the waste water a total of 90,000 to 130,000 gallons per day of shower, washroom and sanitary sewage."

The pickle liquor consists, as it is dumped into the sewer, of 2 per cent sul-

phuric acid and around 18 per cent of ferrous sulphate. This is substantially the only waste that results from the operation, other than from the washrooms and things of that kind.

In the expansion of the plant, the general water requirement in the processes are generally the same as in the older parts of the plant, with the exception that they plan to collect this waste pickle liquor, and barge it out to sea and also will have septic tanks for processing the waste waters from the washrooms and change houses.

Even though the plant is considerably larger, the problem is generally the same.

When Columbia first contemplated the mill they approached the Dept. of Public Health and the Fish and Game Commission to see whether or not it would be satisfactory to barge this material out to sea. The state agencies raised the question whether it could be done more economically, as the barging is a very costly operation. So they jointly considered the possibility of dumping this material through a separate pipeline into the main channel of the river which is just on the other side of the slough.

The representatives of these two state agencies made tests in the neighborhood of the plant and calculated the effect of this pickled liquor which would be discharged continuously. It was not quite

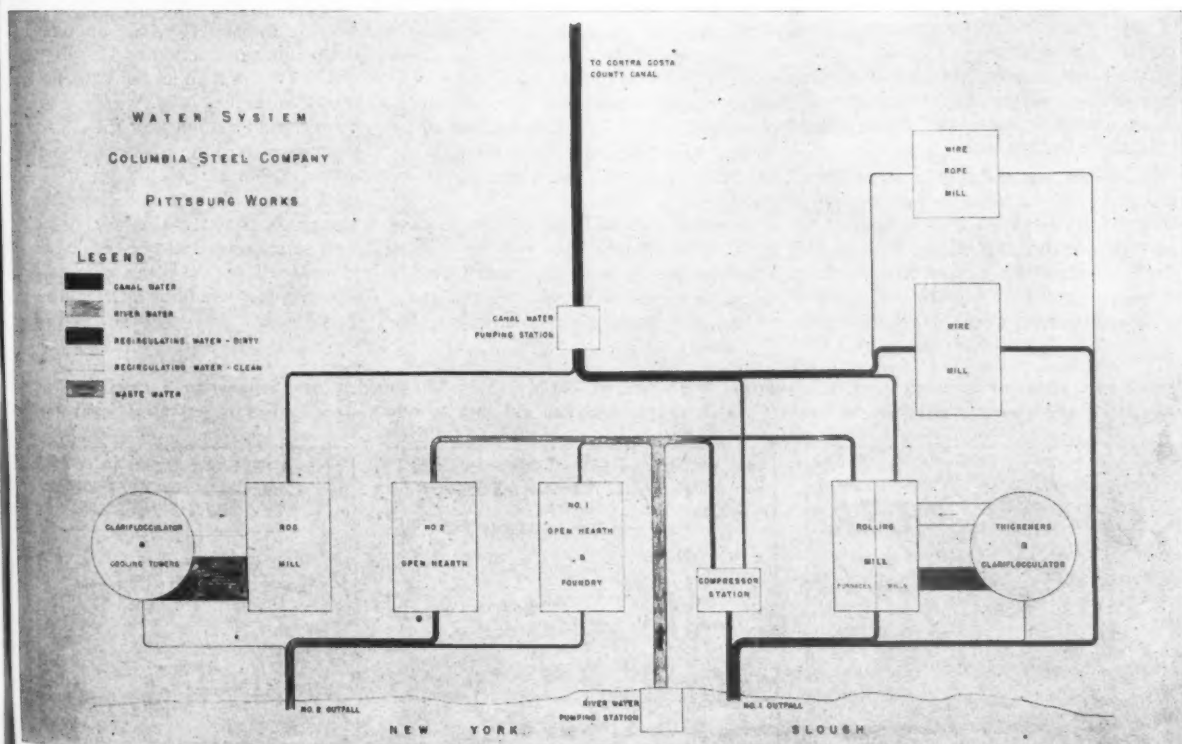
certain that there would be no deleterious effect on the fish life in the stream. They also wanted to review the situation under different water conditions in the main channel of the river and in the slough, which would take something like six months, and as Columbia were in a hurry to get their mill built, they decided to go along with this barge alternate so there would be no question about it.

In other words, the steel company is leaning over backwards in order to take care of the problem.

Slag disposal does not present any problem as far as reaching and effect on underground waters is concerned. Slag produced at the open hearth furnaces is usually dumped as a fill in the areas surrounding the mills. This is the general practice, followed not only on Columbia's own property, but in neighboring areas that are depressed and need to be brought up to grade for future industrial use.

Columbia has essentially the same operations at Torrance, with an open hearth and a rolling mill. There is a recirculating system for rolling mill water, essentially the same general idea as at Pittsburg. There are also wells as a source of supply for mill water, and all of the waste waters from the mill which are generally the same type as the Pittsburg plant are disposed of through the sewer system.

Chart shows water circulating system at Columbia Steel Mills. Since river water is salt it cannot be used for most processes because harmful to equipment and product; canal water (fresh) recirculated to various departments before discharge; dangerous pollution minor.



Good Follow-Up Method Makes Suggestion System Pay Out

By C. D. WAGGONER
Credit Manager, Gates Rubber Co., Denver

IN THE handling of suggestions, probably nothing can tear down more quickly all of the preliminary backing given by management, the promotional effort which has been put forth, and any confidence which may have been previously attained, than careless investigation.

When we first started our system, it was our belief, along with that of many other companies, that a suggestion should be passed on to the department head concerned for his investigation in his department. He would then return it to the suggestion department with his comments, from which we could make our decision.

But with our organization, it did not take long to find that this was not the answer. In the first place, as busy as these men are, too much time was taken to get action on the suggestions. Then, more often than not, the suggestions had to be passed on to other departments such as engineering for an estimation of installation cost, the industrial engineering department for a savings estimate, other production departments in case they too were affected, sales department where volume played a part, cost department, technical, and many others.

We always acknowledge a suggestion when first received, and it is then our policy to give the suggester some sort of a report on our progress within two weeks time. It simply was not possible to do this without personal follow-up by the suggestion department, so we started our present

policy of placing full responsibility for investigation on the suggestion department.

We now have full time suggestion investigators assigned to various areas of the factory and office. The responsibility of these investigators is to personally promote suggestions in their areas by becoming acquainted with employees; to investigate and follow the progress of all suggestions received in their areas; and to keep the suggester informed of the status of their suggestions. In our plant, each investigator can handle 100-125 new suggestions per month and still have time for the personal contacts needed in his area.

The men on these jobs are picked after having taken various personnel tests to show first their mental ability, mechanical aptitude and interest in personnel work. Their tests must show an all around ability and background to handle this important job. An engineering education and industrial experience is desirable.

Suggestions are taken from the boxes each day and then classified by the investigators, in order that any duplication will come to light. Then after the acknowledgment and other clerical detail, the investigator first takes the suggestion to the superintendent of the department involved.

Together they will look at the operation in question. Maybe they will be able to agree on the decision then and there. If the suggestion is to be adopted, the investigator will make that notation on the

comment sheet attached to the suggestion, and notify the suggester of the decision, telling him about how much time will be needed for installation. At the end of that period, he again checks the operation to see, first, how successful it is proving, and then to find out the amount of savings. Several departments such as sales, cost, and others may be checked before the savings can be determined.

If, on the investigator's check-up, he and the department superintendent cannot agree on the adoption of the suggestion, the investigator will carry his investigation on to other departments such as engineering, technical, etc. for their opinions. The investigators must be sure our conclusions are right, to avoid either an unjustified installation expenditure or the rejection of a good idea.

If the conclusion is finally reached that the suggestion should be rejected, the investigator notifies the suggester of the decision, giving the reason for it, and offering the suggester the opportunity of challenging our action.

Thus you see, under our plan, the investigator is the key man. We must have top management's support of the department; supervisory backing is essential; but if the investigation and analysis of the investigator's isn't accurate and thorough; if he himself does not have the confidence of both supervision and non-supervisory employees, all of the other advantages our system enjoys would be offset and our plan would fail.

* Three of a series of cartoons used to encourage employees of Gates Rubber Company to use Suggestion System; each idea is followed up and awards are given to workers whose suggestions are put into practice. This system is enthusiastically received.



Quick Quenching of Molten Rock to Make Fertilizer

UTILIZING a quick-quenching method of cooling molten rock after combining olivine and phosphate in an electric blast furnace, Manganese Products, Inc., Seattle, Wash., began production of calcium magnesium phosphate for soil fertilizer last March. The only plant of its kind in the Pacific Northwest and the second in the nation, the Seattle concern started operations with an initial capacity of 50 tons per day.

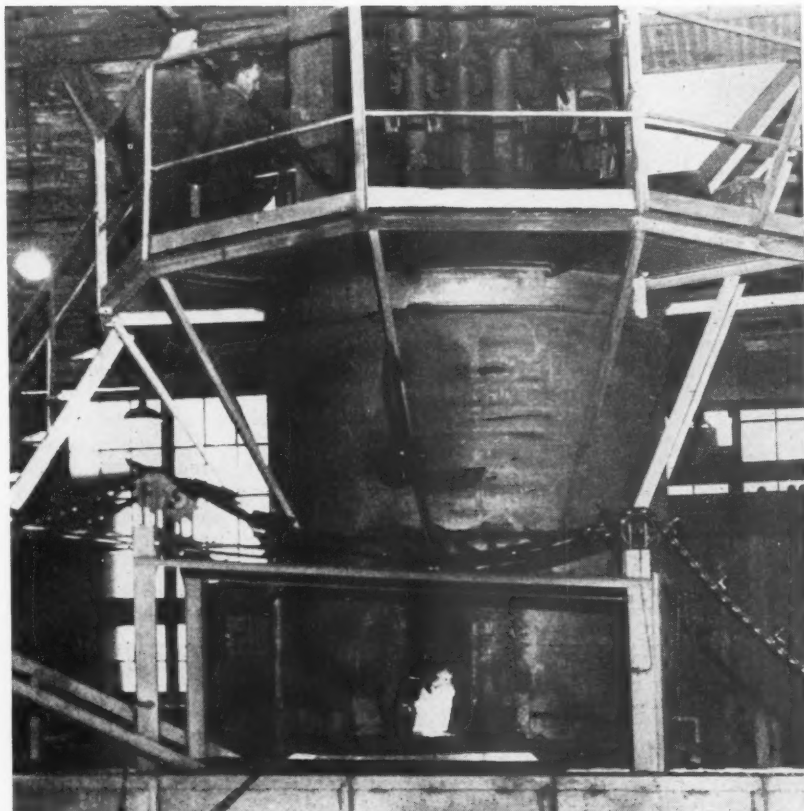
Start of operations marked culmination of 12 years of research, largely at the University of Washington, which had as its goal the commercial production of phosphate in a form which might be assimilated readily by plant life. Figuring importantly in the production method is the use of olivine as a source of magnesium, and the cooling of the molten rock as soon as possible after it leaves the furnace in order that (1) the phosphate will not return to its natural form and (2) so that the granules will be the smallest possible mesh.

Melting of the rock is accomplished in a Greene electric blast furnace which was rebuilt for this new chore by increasing its height to ten feet from five feet. Lined with nine inches of carbon and four and one-half inches of fire brick, the inside diameter of the furnace is five feet, seven inches. Openings at the top for charging, inspection, stack and electrodes are through a 14-inch concrete cover. The furnace has a capacity of 10 tons. However, experiments proved that the best operating level is at five tons because of the fact pockets of gas were inclined to form when the maximum, or near-maximum charge was used. Also, it was learned that loss of phosphate by reduction could be prevented by maintaining a cold charge above the molten charge.

Water-Cooled Electrodes

Temperature in the furnace, which ranges from 1500 to 1600° C., is attained by three six-inch graphite electrodes operating at 180 volts under 5,000 amperes and utilizing 60 per cent of the output of a 2500 kva transformer. The electrodes, which carry water-cooled clamps and rings, are consumed at the rate of 15 pounds per ton of rock.

The furnace charge consists of five tons of rock to the proportion of two parts of phosphate to one of olivine. One charge takes about two hours to go through the furnace. Taps to take off the molten rock are of 30 minutes' duration, with a five-minute interval between each tap. At the end of each draw a tapping bar is inserted in the furnace in order to prevent a cold



• Workmen are seen tapping a charge of molten rock. Three six-inch carbon electrodes (top) provide heat for the operation; quenching troughs are pictured in foreground.

crust from plugging it. One ton of rock produces about nine-tenths of a ton of the calcium phosphate fertilizer.

The quenching trough for cooling the molten rock is immediately adjacent to the furnace, and this quick cooling results in a minus 20 mesh for the phosphate granules. If the molten rock were to flow any distance before being cooled, the mesh of the finished product would be increased materially. Normal cooling of the rock would result in the phosphate reverting to its original composition, a form in which it is not assimilated by plant life.

Eleven Nozzles Used

As the stream of molten rock leaves the furnace, it is struck by water from 11 nozzles on four pipes at a pressure of from 70 to 100 pounds. One line of nozzles strikes the molten stream from the bottom, aimed at it from right angles, and the second group of nozzles hits it from the top. The granules, which are formed immediately, are washed into the quenching tank which

is set at right angles to the molten stream.

A chain conveyor, cleated with 36-inch angle irons placed 15 inches apart, dredges the granules from the bottom of the tank which is inclined to a height of nine feet at one end, permitting the water to drain off, and dumps them into a skip box from which they are conveyed to an oil-fired rotary dryer. A spray of water drenches the conveyor cleats as they return to the quenching tank, washing off remaining granules for later recovery. From the dryer, the phosphate travels by belt to an Eimco ball mill which reduces the granules to a minus 100 mesh. The ball mill has a capacity of five tons per hour.

Manganese Products, Inc., which is headed by John R. Allen, plans installation of a second furnace later this year and a third next year. They will bring production to about 150,000 tons a year. Plans are being developed for the production of manganese sulphate, manganese dioxide and ammonium sulphate.

Designing a Factory for Speedy Materials Flow

By W. R. POSTLEWAITE
Engineer
Standard Oil Company of California

Wherever materials are to be handled, there some business organization is either making or losing money, perhaps an amount large enough to mean the difference between profit or loss on the entire operations of the company. For that reason, "Western Industry" provides a continuous editorial service to its readers on materials handling developments and problems. The accompanying article is another of "Western Industry's" regular features on handling of materials.

WHEN starting the design of a new plant, the materials handling aspect should be injected into the problem right from the beginning.

The arrangement of the processing equipment, machine tools, etc., together with the building design, should not be completed first on the assumption that the flow of materials can be worked to suit the layout. The final outcome could then be an inferior makeshift plan embodying undesirable compromises that could readily be avoided by designing the manufactur-

ing operation around the material handling.

When both phases are evolved together, and the building shaped to fit this combined result, the flow will be smoothed out and the total effort and cost minimized.

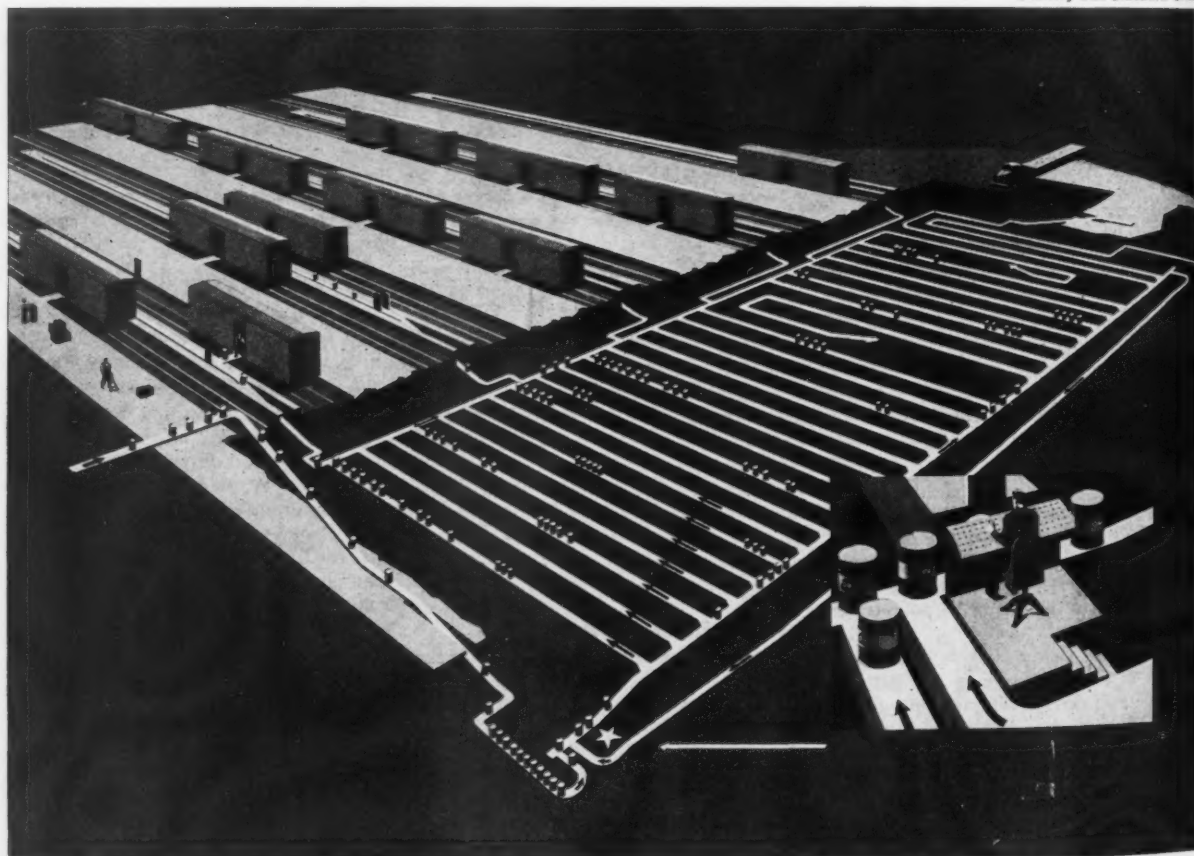
In undertaking the layout of any sizable warehouse or plant, the first point to settle is, who is to do it. This is an important decision, since it is reliably reported that the material handling wages in many industries can comprise as much as 22 per cent of the total payroll of the average

plant, and furthermore, more human effort in industry goes into this phase than into any other common single operation.

Unlike the processing functions, the handling of material contributes nothing directly to the product but extra cost, and if the plant is not properly laid out for efficient material movements, the product will thereafter be burdened with extra cost until the defects in the handling plan are corrected. Such plant modifications may be very costly to make at a later time after the installation is completed.

• An example of modern industrial planning is new Standard Oil grease plant at Richmond, Calif., designed by author. Cut-away shows conveyor system controlled by one man (star, foreground). It has an "electric memory" for transportation of predetermined loads.

Courtesy The Standard Oil



Plant or warehouse layouts should be made by qualified engineers experienced in materials handling, and not by the plant operators. The latter are usually overburdened with their normal duties and furthermore cannot keep abreast of the numerous latest developments in handling facilities and planning.

Neither is the reputable architect, who is to make the related building designs, to be relied upon to plan or produce a modern plant in which the materials will flow most efficiently. The plant layout must be engineered and carefully too, since future years of operating efficiency and labor cost are determined at this stage.

Design Flow Sheet Data

Usually the first step is to develop completely the basic information as to the quantities of all the different materials to be processed or handled. Records of past production, in the case of an existing business, will serve after being adjusted to allow for future trends. If the business is new, particular care and judgment must be exercised in arriving at realistic design quantities since these estimates will determine the size and type of plant.

It is right here in the thorough assimilation of the operating conditions, and in the preparation of the annual, daily, hourly and per minute flow rates, that the proper perspective is obtained which will enable the designer to visualize, at least in a preliminary way, the appropriate materials handling plan.

Complete data covering each pertinent item of material should be assembled, including dimensions, weights, the order and methods of processing, direction and rates of movements, stock quantities and optimum inventory periods.

A bird's-eye view of the entire plant as regards the operating functions to be satisfied, is gradually evolved in this preliminary work. If the plant layout engineer has acquired the proper insight into both the manufacturing and materials handling facilities, his subsequent work may be expected to result in the introduction of new improvements in the plant operation.

This is particularly true if an old established process is to be modernized and brought up to date. New methods and tools for materials handling have much to offer here and valuable results can be secured by using them to coordinate the materials flow with the other related operations. The flow sheet giving all fundamental material handling design data is invaluable in plant layout work and there is no ready substitute for it.

Placement of a New Building

Usually there are certain ground space limitations, as determined by existing buildings, boundaries, or practical direc-

A definition of Plant Layout Engineering is in order here and the following definition as stated in a recent paper by R. W. Mallick of Westinghouse Electric Corporation is pertinent:

"Placing the right equipment coupled with the right method, in the proper place, to permit the processing of a product unit in the most effective manner through the shortest possible distance and the lowest possible time."

In applying this definition in practice there are a number of fundamental principles which have appeared in recent publication, and which will serve as guides in arriving at an economical arrangement having sound materials handling functions. Some of these are presented below with certain modifications:

1. Handle materials in large units.
2. Balance men and equipment.
3. Select equipment suited to the job and standardize on it.
4. Move materials in straight lines.
5. Consider the time element in all operations.
6. Plan the operations to avoid:
 - a. Frequent hand lifting of material from floor level to an overhead position.
 - b. Having more than one operator manually lift or move material.
 - c. Manually lifting 75 lbs. or more above knee height.
 - d. Having an operator, normally engaged in other tasks, manually handle materials constantly for more than 30 minutes per day or longer in order to perform his normal operation.
 - e. Having one or more operators manually move large quantities of materials a distance of more than 50 feet.
 - f. Frequently jamming the receiving department where truck deliveries are delayed and where box car demurrage costs can pyramid.
 - g. Crowding of storerooms or warehouses.
 - h. Damage to materials in handling due to improper equipment or aisling.
 - i. Improper access to materials which may result in stocks becoming lost.
 - j. Unbalance of the over-all production cycle time versus the net process time due to improper materials handling.
 - k. Long narrow aisles, congestion, and hazardous traffic routes.
 - l. Congestion on the floor by utilizing the cubage available above the stock piles as storage space.
 - m. Rehandling of materials.

tions of approach for railroad facilities, or truck roadways, which may govern the general orientation of a new building on the property. Where the trackage or roads are fixed, the building shape should be adjusted to these key factors, since they constitute a vital part of the main flow circuit.

The next step, following the assembly of the generalized materials flow sheet data, is the tentative placement of the appropriate internal divisions of the plant adjacent to the incoming and outbound tracks or roads, so as to minimize the distances both the raw and finished material will have to move. This may require cer-

tain compromises and adjustments of some sections or departments of the plant, but if the over-all plan is scrutinized with this objective in mind, obvious errors in arrangement will be avoided.

Trackage

Based on the projected materials traffic figures already established for the project, the proper railroad track and car spot requirements can be determined. At this stage, when the general arrangement of the plant is being roughed out, the principal plan of materials handling, which appears most suitable, can usually be envisioned sufficiently to enable the designer to arrive at the times required or available for unloading and loading box cars. Thus the dock lengths may be fixed to accommodate the number of railroad cars needed to adequately serve the plant and handle the material traffic. The allowance for future expansion space should also be considered here as elsewhere within the plant.

In large plants handling 40 to 50 or more cars in an 8-hour day, the railroad switching facilities must be carefully analyzed and the supplementary yard tracks designed or altered to insure that avoidable plant delays are not incurred because of excessive switching time. Another consideration which is useful in such plants where outbound shipments may involve a large number of cars to be shipped daily to different destinations, is the provision of numerous short track loading spurs holding but three to four cars. With short docks of this sort, as soon as a small group of cars is ready to go, the switching can be done without interrupting other incompletely loaded cars. The dock space may then be utilized to optimum advantage.

This timing feature may be very important where cars are served by an elaborate and expensive conveyor system which must be kept busy handling a large volume of goods for best economy. Rapid replacement of the cars, accompanied by efficient switching, is a determining factor which may even bear on the actual shape of the plant, and tie in very intimately with the balance of the materials handling facilities inside the building proper. A cursory or inadequate treatment of the amount or arrangement of railroad spurs, or highway truck dock areas, serving a plant may readily result in bottlenecks which could slow the pace for the plant's production, or otherwise penalize the operations.

Plant Design Features

The entire plant arrangement within the building should be designed to provide a streamline flow of the materials from the time they are received, warehoused, processed, warehoused again, and finally shipped. The nature of the business, of course, would govern the size and extent of each of the areas required as well as their positions relative to one another.

(Continued on page 46)

FACTORY DESIGN—(Cont'd from p. 45)

Where feasible, and at least from a materials handling viewpoint, the operations often can be carried out to the best advantage in a building having a single floor level. Multiple floor buildings, in which the materials must flow repeatedly from floor to floor on pallets or skids, usually entail delays in handling by conventional elevators, or intermittent pallet handling elevators. Delays at elevators cost both time and money.

Where the between-floor pallet traffic is considerable, the use of portable sections of roller conveyor laid temporarily on both the elevator car floor and the building floor at the doors, may be used to advantage in helping to minimize the car loading and unloading time. The loaded pallets may then be accumulated on the floor level conveyor sections in front of the elevator door, and when the car arrives, the assembled load may quickly be manually pushed in, elevated, and then pulled off onto another section of conveyor at the proper floor. Here the industrial trucks can later remove them and complete the handling on an independent time schedule.

Floor Requirements

A very significant plant design feature which bears on efficient materials handling is the building floor. If rapid and economical operation of the plant vehicles is to be realized over a long period of years, the floor, in addition to carrying the design load, may stay smooth and flat. The rolling resistance and the operating and maintenance costs of the handling equipment is minimized thereby.

Fork trucks, when loaded, may have 80 to 90 per cent of their gross weight concentrated on their front axles, and their expensive rubber tires would be quickly damaged by rough or broken flooring. Considering the relatively narrow gauge of the truck wheels, and the heights of 12 to 13 feet or more to which heavy palletized loads are elevated in warehousing operations, it will be appreciated how uneven floors would create safety hazards to the personnel. The maneuvering speed with elevated loads would obviously be restricted by rough or uneven floors.

In view of these operating features, it should be considered a good investment to construct the floors of permanent buildings properly and with care so that a level surface is preserved. Reclaimed or mud filled ground areas for building sites, as are found around the San Francisco Bay area, require supporting the entire building floor on piling. In a number of existing buildings where this has not been done, there are instances where as many as three floor slabs have been laid, one upon the other, to offset sinkings of several feet. This was necessary to keep the floor level even with the street.

(A second installment of Mr. Postelwaite's article will appear in the November issue.)



• Frank and Robert Chambers, with Dr. Hans Goldschmidt, executives of Magna Eng. Co.

"LOCAL BOYS" MAKE BETTER MOUSE-TRAP

Any young man going out in the world for the first time to make a living, and who is discouraged by the idea that "all of the smart ideas have been thought of" should take a lesson from the story of two young San Franciscans, Frank G. and Robert L. Chambers. Both less than 35 years old, they recently signed a \$1,000,000 contract with Montgomery Ward & Company for a supply of their new multi-purpose power tool, "Shopsmith."

The Chambers brothers graduated from the University of Utah and the Graduate School of Business at Harvard only 10 years ago. Frank worked for a distributor of underground electrical conduit, and later in the offices of R. H. Macy Co., New York, and Robert held various posts with the Henry Kaiser organization. It was while he was head of the engineering analysis and progress department at the Kaiser Richmond shipyards that he met Dr. Hans Goldschmidt, a German inventor.

The latter came to America to get away from Nazi oppression. With typical German thoroughness he surveyed all the major forms of industry before settling on woodworking as the one he wanted to enter. His contribution to modern woodworking practice is the "Shopsmith," the multi-purpose tool referred to above. Only about 6 feet long and weighing less than 200 pounds, it is readily converted from a circular saw to a wood lathe, vertical or horizontal drill press or disc sander.

The inventor formed a partnership with Frank and Robert Chambers under the name of the Magna Engineering Corporation, San Francisco. In the 12 months since incorporating, the firm has produced more than 10,000 of the units, and their estimated sales for 1948-49 are in excess of \$3,000,000. A contract was recently signed to increase production to cover the eastern market by manufacturing Shopsmiths in Cleveland as well as San Francisco.

How Industry Can Make Good Use of BLS Services

By MAX D. KOSSORIS •
Director, Pacific-Rocky Mountain Region
U. S. Bureau of Labor Statistics

THE Bureau of Labor Statistics of the U. S. Department of Labor, popularly referred to as BLS, has been in business since 1885. Originated as the Bureau of Labor within the Department of Interior, it was transferred under its present name to the Department of Labor when that agency was established in 1913.

Strictly a fact finding agency, and without promotional functions, the BLS is the major source of information in the Federal Government on current labor problems. Throughout its 63 years of existence it has collected and disseminated information on subjects concerning the welfare of the workers in the United States. It is staffed with professional statisticians and economists whose function is to provide objective and reliable facts. That the Bureau has achieved and maintained that objective is amply attested by its reputation and the fact that both employers and unions alike usually accept its findings as reliable.

It would be impossible, in fact, for the BLS to function in any other way. The facts it gathers are supplied voluntarily by employers and by unions. If it deviated from its objective even slightly, if it undertook to be partisan in any controversy, if it colored the facts to fit a preconceived conclusion, the Bureau would soon find its sources of information shut off, and would go out of business. It *must* be accurate and non-partisan.

Of the thousands upon thousands of requests which BLS is called upon to service, the predominant majority come from employers. Inquiries cover a great variety of activities: wholesale prices, retail price wage rates, wage structure, working conditions, work productivity, occupational outlook, work stoppages, collective agreements, work injuries, workmen's compensation, employment, construction, and a considerable variety of general aspects of the labor field. As matters now stand, the services of the Bureau are used much more extensively by employers than by labor unions—partly because there are many unions have not yet learned how to tap and use the resources of BLS.

For practical purposes, and under present conditions, the functions of the Bureau may be described as objective fact determination for the purpose of lifting these facts out of the realm of dispute in the collective bargaining process. Findings accepted as reliable facts mean that much



• Employment statistics play important part in production plans of aircraft parts plant.

less to argue about. What are the prevailing wage rates in an industry? What are geographical wage differences? Have wage rates and weekly earnings kept step with the changes in the cost of living? If not, how much of an adjustment is necessary? These questions, so basic to current wage negotiations, frequently have factual answers. They need not be argued about. Having a basic set of facts, the only point to be settled is: Where do we go from here? The more industries are covered by these factual surveys, the more orderly and intelligent can be the collective bargaining process.

As already indicated, BLS covers a great variety of activities. It may be of considerable help if these are described briefly to indicate how the Bureau goes about its business and what kinds of information it provides to the public.

Consumers' Prices

BLS probably is better known for its so-called "Cost of Living Index" than for anything else it does. The monthly releases receive wide publicity, and the wage adjustments for a great many workers are hitched to its ups and downs—at this time, however, invariably up. The recent wage agreement between the General Motors

Corporation and the United Automobile Workers is merely one illustration.

BLS actually labels this price series "Consumers' Price Index for Moderate-Income Families in Large Cities in the United States." This describes the C.P.I., as it is called for short, for what it actually is—a measure of the retail price level, and not a measure of the cost of living.

Retail prices for several hundred commodities are collected as of the middle of the month from retail establishments in 34 large cities in the United States by Bureau agents. The individual items are carefully specified as to size, quality, etc., so that the prices obtained will always apply to the same item. (At times, of course, it is necessary to make substitutions as products are replaced in consumption habits; for example, nylon stockings replaced silk and rayon hose.) As a check on the accuracy of prices obtained by its agents, other agents of the Bureau actually buy some of the items which appear questionable. These checks, however, have not produced any important deviations from the price obtained by BLS in its routine price collections.

The items of the CPI fall into six major groups: food, apparel, rent, fuel (ice and



• Seasonal labor, as in this fish cannery, can be predicted from BLS figures; facts for both sides are furnished by the Bureau in case of disputes. Figures cover many industries.

electricity), housefurnishings, and miscellaneous. Except for the last group, these headings are self-explanatory. The miscellaneous group includes such items as transportation, medical care, laundry and telephone services, recreation, tobacco, haircuts, etc. The importance of every item and the weight attached to each in the computation of the index is based on actual consumption patterns of thousands of moderate income families in the cities involved. In December of 1947, for instance, the food price group had a value of 42.0 per cent of the composite index. The price level of meats accounted for 30.8 per cent of the index for food prices and 12.9 per cent of the composite CPI.

The index uses the average level for the years 1935-39 as a base of 100. The U.S. index for June 15, 1948 of 171.7, therefore, means that the overall consumer price level had risen 71.7 per cent above the 1935-39 base. But the individual items did not move evenly: the index for food was 214.1; for clothing 196.9; for rent 117.0; fuel, electricity and ice, 132.6; housefurnishings, 194.8; and miscellaneous 147.5.

In addition to the U. S. index, the Bureau publishes index figures for each of the 34 cities which comprise the national index. For the 11 states west of the Rockies, CPI figures are available for Los Angeles, San Francisco, Portland, Seattle, and Denver. Due to a sharply curtailed budget, it was necessary, beginning with July 1947, to issue the data for the last four cities quarterly instead of monthly. The food index is released monthly—not only in each of these cities, but also for Butte, Montana, and Salt Lake City, Utah, for which the other items of the CPI are not

priced. Employers in cities other than the five CPI cities who hitch wage changes to "cost of living" changes must use either the national index or that of one of the cities for which data are available.

Before leaving this subject, one more point must be made: the index number of any particular city measures the change in the price level in that city from the 1935-39 base in that city. One should not compare the index of any one city with that of any other to see which has the higher living cost. The only thing such a comparison would reveal is whether the price level in one city has gone up more than in the other.

Wholesale Prices

Spot prices for 28 basic commodities—including such items as corn, cotton, butter, hogs, hides, steers, sugar, etc.—are released daily. A more comprehensive index, including about 900 commodities, is available weekly, and still a larger index is published on a monthly basis. Aside from the use of these series as an important indicator of business conditions, they also serve as a weather barometer for retail prices. Changes in consumers' prices usually follow changes in wholesale prices.

Wage Rates

The occupational wage rate surveys fall into two types: (1) those repeated annually, and (2) those conducted as special surveys. In either case, the wage rate data supplied covers selected key occupations in the industry surveyed together with prevailing practices as to weekly hours, incentive systems in use, paid holidays, vacations, and similar phases of working conditions—the so-called "fringe issues." These surveys are usually conducted

through the use of field agents who obtain the necessary data from employers' records after thorough consultation, and as a rule with the active cooperation of employer associations. The surveys are, of necessity, restricted to selected cities—usually those important to the specific industry studied.

Of particular concern to Western employers, because these surveys will be conducted in the Western states, are the routine surveys in the following industries: hotels, power laundries, auto repair shops, dresses, men's clothing, footwear, furniture, paints and varnishes, machinery, machine tool accessories, industrial chemicals, ferrous foundries, tires and tubes, and department stores. Special surveys are planned for airframes, canning, petroleum refining, and saw milling. The study of office worker salaries conducted in the Seattle and San Francisco-Oakland areas last year, and among the Bureau's "best sellers," will be run during the current fiscal year in Los Angeles and Salt Lake City.

Union wage scales are surveyed in key occupations in the construction, printing, local transit, trucking and baking industries.

Another report for which demand is growing rapidly deals with current changes in wage rates. This report, issued monthly, covers the changes—by industry—which occurred during the preceding month.

Employment

In the field of employment statistics BLS operates primarily through established state agencies, usually the Bureau of Unemployment Compensation. To assist to gather information on trends in employment in individual industries, payrolls and average weekly hours and earnings, the Bureau furnishes technical assistance to the state offices to help them (1) to develop and maintain these data, and (2) to keep them on a level of uniformity and comparability for interstate comparison and for combinations into national totals. It is the second of these purposes the Bureau is after primarily. But by doing the job in this fashion, the Bureau obtains the national data more economically than it could if it collected them directly, while at the same time encouraging the States to develop their own data for their own purposes.

By comparison total employment with the total available labor force, the degree to which the country is utilizing its labor supply can be determined. In a time as critical as the present, that determination is an important fact in our national economy.

Construction

In view of the present housing shortage, information on building activities is in great demand. The BLS issues monthly reports on the number of dwelling units, by type, for which building permits have been issued. These reports are supplied

mented by surveys in selected key areas on non-permit issuing areas.

As in its other activities, BLS is directing increasing attention to the demand for local data. In California, for instance, plans are under way for detailed construction statistics for Los Angeles and the nine Bay counties, including San Francisco and Oakland. These may have made their appearance by the time this article appears in print.

Productivity

One of the toughest jobs the Bureau has on its hands is the measure of changes in labor productivity. Not only is this assignment tough—it is also costly.

For these reasons relatively slow progress has been made in this field, in spite of its importance to both management and labor. Studies which should soon be available cover machine tools, electric machinery, construction machinery, industrial equipment, electrical consumer goods, and radio receivers. Industries in which reports are available include men's shirts, footwear, leather and fertilizer.

Industrial Relations

In this area of work fall the statistics on work stoppages and the analysis of collective agreements. The first of these activities measures the number of strikes, the number of workers involved and the number of man-days lost. The second compares the various provisions found in agreements on specific subjects: general wage provisions, apprentices, wage adjustment plans, incentive provisions, escalator clauses (tying wage changes to cost of living trends), leave of absence, promotion, transfer and assignment, union-management cooperation, machinery for collective bargaining, and a considerable variety of others. The significance of these analyses is apparent: they supply the answer to the question: "What is being done elsewhere?"

Work Injuries

U. S. industry annually takes the lives of about 18,000 workers and permanently impairs another 100,000. Roughly two million workers are temporarily disabled for at least one full work shift. In manufacturing, the average temporary disability in 1947 averaged about 18 days.

Frequency and severity rates, the standard yardstick for measuring work injury experience for a plant or an entire industry are available for upward of 180 industries. Also, there is Bulletin 772, "Accident-Record Manual for Industrial Plants," as an aid to individual employers in the compilation and use of accident statistics.

How to Get the Data

This is not a complete recital of BLS activities. It is a summary of the types of activities which employers actually ask about.



• Elementary chemistry was basis for this method to reclaim waste soil—acid neutralizes the alkali and makes land more useful for San Joaquin Valley crops. Picture shows equipment used by one of the General Chemical Co. Div. distributors.

SULPHURIC ACID USED TO RECLAIM SOIL

Use of sulphuric acid in irrigation to neutralize the alkali in the soil may not only be the means of reclaiming vast areas now unsuitable for agriculture, but also provide the second largest outlet in the West for sulphuric acid manufacturers, estimated at as much as 75,000 tons a year. Oil refining at present consumes the largest volume of sulphuric.

In the last two previous seasons, sulphuric acid was tested out by a number of farmers, but 1948 was the first year when farm use began to run into real tonnage. Soil sulphur has been used heretofore to overcome alkali, but it requires application for three years before results are obtained, while dissolved sulphuric takes effect immediately and seeding is possible within three weeks. Soil sulphur also only renders the land fit for barley, while sulphuric acid is so effective that it permits growing cotton, alfalfa, vegetables or even orchards on hitherto waste land.

The effectiveness of sulphuric acid has been known for many years, but the cost was prohibitive until processes of manufacture were so greatly improved and facilities enlarged in wartime that the acid can now be provided at a price economically sound for any farmer. The normal amount required is one ton an acre, which can be furnished to the farmer applied to the soil for about \$35 an acre.

Distribution of sulphuric acid to the farmers has become a specialized business. Among those engaged in it are the Gene Tienken Co. of Tulare, California; Soil Services, Inc., of Fresno; Valley Chemical Co. and McIntosh Bros. of Imperial; Benedict Fertilizer & Supply Co. of El Centro, and the Southwest Wholesale Cooperative of Phoenix. Manufacturers supplying the acid are General Chemical Co. Div. from their plant at El Segundo, Bay Point and Richmond, and Stauffer Chemical Co. from their California factories.

The acid is shipped to the distributing point in tank cars, and then transported to the farm in special tank motor trucks. A steel tank which may hold as much as 10 tons is then set alongside the ditch and the acid fed into the stream. Another method of application is by a sprinkler attached to the truck by a boom.

After the land has been treated, fertilization is necessary, in the following year a light treatment as a safety factor is considered desirable.

NEW PRODUCTION TECHNIQUES

New "After-Burner" Adds Extra Punch to Jets

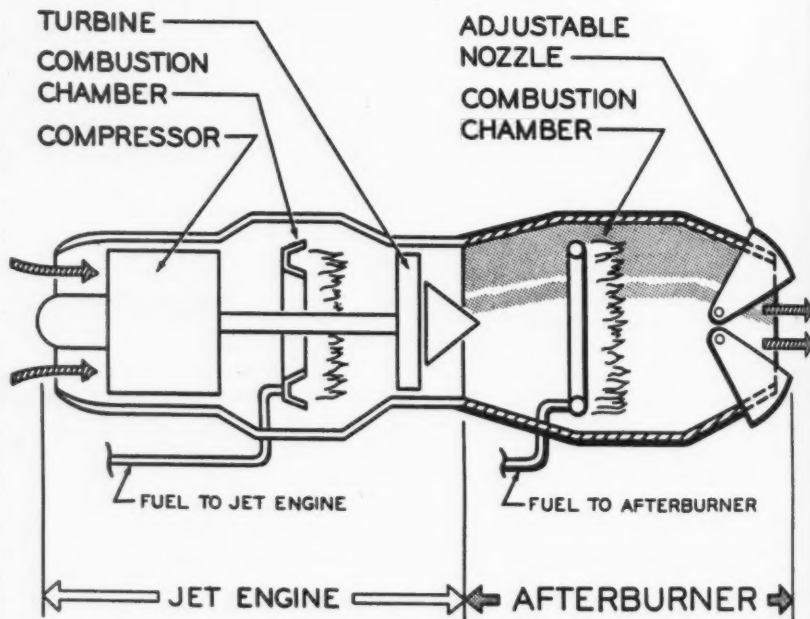
AN "afterburner," a device that is added to a turbo jet engine and makes possible substantial increases in power ratings, has been successfully flight tested by the United States Navy Bureau of Aeronautics. Developed by the Solar Aircraft Company of San Diego, California, for the Navy, an "afterburner" was installed in a Chance Vought XF6U "Pirate" Navy fighter and flight tested at Patuxent Naval Test Center, Patuxent River, Maryland.

Solar was selected over a year ago for this work because of its wide experience in the high-temperature metal field and in combustion work of a similar nature, as exemplified by the highly successful war time invention of a smoke creator operated from the exhaust of reciprocating aircraft engines which was developed for the Office of Scientific Research and Development.

"Afterburning" is descriptive of this new thrust augmentation device for airplanes powered by turbo-jet engines because burning takes place in the tailpipe after the air has passed through the engine and left the turbine discharge. A turbo-jet engine pumps a large volume of air, and only a small portion of oxygen is consumed in the combustion chamber because of the temperature limits of the rotating parts.

The afterburning principle is that of burning the balance of the oxygen in the tailpipe, where the heat generated does not have the temperature limitations which are present in the case of burning before the turbine. By injecting and burning fuel in the tailpipe, the thrust of the engine is greatly increased. Although fuel consumption is higher, the added thrust boost has a wide use in the short bursts of speed required for take-off and combat. Important advantages of using the afterburner for these purposes is that it adds little weight to the airplane and is not complicated.

There were several difficult problems encountered in the development of the application of the afterburning principle. Among these were making a device that would burn fuel efficiently in the terrific force of gases passing through the tailpipe,



and making a tailpipe that could withstand gas temperatures considerably above the melting point of practical high-temperature metals. Solar engineers are currently working on problems of afterburning involving the latest turbo-jet engines, with tests indicating marked success.

The afterburner principle has been developed to the extent that it can readily be adapted to a turbo-jet engine of any type or size. The unit is self-contained and is completely detachable with disassembly of the engine.

Concurrently, development has been carried out on various accessories that are a necessary part of the afterburner system. One of these is a variable nozzle for adjusting jet velocity. Another is an electronically operated fuel control which automatically regulates the afterburner so that it requires no attention from the pilot.

Still other accessories include a nozzle actuator, afterburning fuel pump, and ig-

niter—all of which can be furnished for a complete installation.

World's Largest Hydraulic Press

The world's biggest hydraulic press was completed after two years' work by the Hydraulic Press and Engineering Company, Los Angeles. This press, which went into operation a few weeks ago, has crushed a whole automobile into a rectangular bale of metal measuring 24 x 24 x 56 inches, ready for the hungry charging boxes of southern California steel mills.

It weighs 250 tons and is capable of exerting a 500-ton pressure, which opens to a width of six feet, a depth of five feet, and a length of 16½ feet—and then closes to 24x24x56 inches, regardless of what it is compressing. Two big clam shell bucket cranes are needed to supply the yawning maw of this press which industry observers say will go a long way toward cracking the baling bottleneck.

Two Essential Steps to Attain Success in Export Markets

By ROBERT L. WALDECK

IRRESPECTIVE of all the pious statements of the politicians, the obstacles encountered in foreign trade are many and serious, and foreign distributors need every bit of help and cooperation to enable them to do a job. Further, and understandably, foreign distributors will devote their best efforts to the products of manufacturers who provide that assistance.

It must be remembered that the typical foreign distributor handles the products of from five to thirty other manufacturers. There is no cause for concern in this fact, assuming of course that none of these other products are competitive to your own. As a matter of fact, and particularly in the case of industrial products, foreign representatives in the more restricted markets would be quite unable to maintain the type of technical organization necessary to distribute those products if they had to depend on sales of one product, or one manufacturer, alone.

The problem then is to make certain that the representative devotes at least a proportionate amount of his time, and preferably more, to expanding sales of your products. You can assure this by showing him how to make more sales and profits; by training him to the best of your ability, and then by regularly stimulating him in his efforts.

Offer Encouragement

Begin with the little things, and later offer more elaborate assistance. Answer foreign correspondence with the same speed (and thoroughness) that domestic inquiries receive. Have in your organization the facilities to compute and submit c.i.f. (cost, insurance, freight) quotations to all parts of the world.

Encourage your foreign distributors to bring their questions regarding your products to you, and give them the full response they deserve. Give them a brief, simple sales program. Give thought to the development of some sort of a simple, somewhat personalized bulletin to maintain regular contact with your representatives, to advise them what other foreign representatives are doing with your products, and to let them know that you think of them even in the months when they don't send in orders.

Give your foreign distributors the biggest discounts on your product that you can afford, remembering that you are competing with other manufacturers for their time and effort, and that they will naturally turn in the direction promising the most profit. Because export shipping is expensive for your distributor, and ultimately for his customers, every effort should be made to guide your distributor towards larger single shipments rather than a series of small orders. This is generally accomplished by allowing an additional quantity discount where distributor's orders for stock exceed a minimum tonnage, or dollar value.

Guide Buying

A corollary problem in this regard makes it advisable to carefully guide your distributor in the merchandise he orders in for stock. Absolutely no good is accomplished by allowing your distributor, in mistaken enthusiasm, to order in an obsolete model of your product, or the wrong product, or enough of a particular item to service his market for the next 20 years. Keep his orders on a sensible basis, and you'll be doing your part to develop a good, hard-working profit-making distributor in the years ahead, rather than a disgruntled one who will ruin your name in the market.

For the most part, standard catalogue sheets and promotional materials in English should be adequate to get started in export markets. Foreign distributors almost immediately request literature in their own language but, with the exception of Spanish which is of use in so many markets, it will probably be economically impossible to supply these requests.

However, two things can be done that will help all of your agents. You can supply them with glossy photos and cuts necessary to enable them to have your literature reproduced in their language in their own country. And you can offer an advertising allowance by virtue of which, as a suggestion, your distributors will be reimbursed one-half of what they spend in promoting

sales of your products in their territory up to say 5 per cent of their purchases during the past year. Such an advertising allowance obviously needs to be carefully controlled by the manufacturer, but is useful in that it concretely assists distributors in their promotional efforts.

Credit Terms

By all odds the most significant factor in an export sales program will be the determination of export credit policy. It can truly be said that the foreign demand for American goods is limited only by the ability to pay for those goods in American dollars. Export credit does present a problem because unless a manufacturer enjoys a world monopoly, the volume of his export sales will be determined not so much by the superior quality of his products, or their more economical cost, as by the credit terms allowed on their purchase.

There is a good deal of misunderstanding and unreasonable fear where foreign credit is concerned. Ignoring for a moment the acute dollar shortages in certain countries, it should be accepted that foreign business men are every bit as honest as are business men in the States. Most foreign business men, like most American business men, are anxious to meet their obligations, and are reluctant to fail to pick up paper due at their bank.

If all other factors could be ignored, foreign credit could be established on the same basis as is done in the states. Perhaps a letter of credit should be demanded on the first order received from a new distributor. If requested, you then may feel justified in making the second shipment, and several following, on sight draft, payable on arrival of the merchandise at port of entry. And assuming a good experience is built up with the distributor on such sight draft shipments, you may eventually be willing to make shipments to him on 30, 60, and even 90 day acceptances. Assuming you have selected your distributors with care, credit losses on such shipments should be no worse than your domestic average and, indeed, in the experience of many exporters, may even run less.

The export credit situation is confused, however, by the acute shortage of U. S. dollars in some countries, resulting in long delays in foreign payments being con-

This is the second in a series of two articles by Mr. Waldeck on development of foreign markets.

verted into U. S. dollars. Thus in Brazil, to pick one of the worst instances at the moment, it is taking about nine months for cruzeiro payments made in Brazil to be converted to U. S. dollars. This does present a difficult problem. To demand letter of credit will simply wind up the distribution of all but the most highly critical products, since the Brazilian government is extremely reluctant to tie up its hard-to-get dollars for from one to four months while the merchandise is enroute from U. S. factory to Brazilian port.

An alternative, generally much more preferable to your local distributor, would be to add in to your invoice 6 per cent to cover financing costs, and then send the shipment sight draft due on arrival. The additional 6 per cent will approximately cover financing costs to the manufacturer during the period of waiting for dollars to become available, and any difference can be adjusted with your distributor.

Meanwhile legitimate manufacturers can discount all drafts covering foreign shipments at the time the drafts are placed with the bank for collection. The discount figure, the rate of interest charged, and total limit of such discounting, will depend of course on the banking connections of the manufacturer, but it can safely be assumed to run not less than 75 per cent of the face of the note, at not over 6 per cent interest. Thus if the shipment is covered by a draft for \$10,000, the bank will immediately credit the manufacturer's account with 75 per cent or \$7,500. At the time payment in dollars is received from its foreign correspondent, the bank will deduct its interest, and remit the balance due to the manufacturer.

In the final analysis, and again excluding those relatively few countries in which there is a long delay in conversion to dollars, the extension of foreign credit can be based on the same factors as exist in the States: the fundamental honesty of the person with whom you are dealing. In the years before World War II, Germany, particularly, made tremendous progress in capturing world markets principally on the basis of liberal credit terms. While we do not have that severe competition at the moment, it is not too early to recognize that normal and warranted credit extension is going to be necessary to obtain and hold these export markets.

Developing an Export Program

From the all too brief outline here given it is obvious that building a sound and profitable export distribution is a highly specialized job. It is unfortunately true that many companies having excellent and highly exportable products still do not do anywhere near the export volume they should simply because top management is too preoccupied with domestic sales matters to devote the effort required, and the

potential does not appear sufficient to warrant the establishment of an Export Department and employment of a qualified Export Manager.

As one way out of this dilemma, more and more manufacturers are turning their export distribution problem over to specialized export service organizations designed to develop overseas distribution. Such organizations serve, in effect as the export department of several non-competitive companies who, for one reason or another, are unable to properly realize their export potential. Such export service organizations develop extended overseas distribution for the manufacturer, handle all inquiries relating to export, provide all documentation necessary to make shipment of orders, oversee invoicing and collection matters, and can serve as the manufacturer's agent in handling the discounting and collection of paper through the manufacturer's bank.

In many instances these export service organizations work with the manufacturers on a principal to principal basis, i.e., handle a manufacturer's export business on an exclusive basis, purchasing merchandise outright for cash, and reselling in their own name on such terms as they see fit. Such an arrangement is obviously preferable for some manufacturers.

One way or the other, all manufacturers, big or small, should be giving thought to the development of export sales. Perhaps those sales will never be but a small part of the over-all volume, but the day may well come when that extra 5 per cent of worthwhile export sales is going to make the difference between a profitable year and a non-profitable one. This is business every manufacturer should be getting. Don't be sorry five years from now that you didn't get an export program under way today.

Permanente Buys Land For Montana Plant

Possible expansion of Permanente Cement Company's facilities to meet the growing needs of the West is indicated by an announcement that the company has exercised an option to purchase 498 acres of land near Helena, Montana, as the possible site of a cement plant.

Pointing out that all of the West's cement producers are operating at capacity and that demand is far in excess of supply, company officials said they are giving the Montana location serious consideration as the site of a new cement manufacturing plant.

Permanente has had the property under option for six months.

Permanente already owns and operates producing plants at Permanente, California, and Seattle, Washington, and has distribution facilities at Honolulu and Redwood City, California.

Labor Disputes Show Drop in California

Although loss of man-hours due to work stoppages caused by labor disputes increased 111 per cent throughout the nation during the first quarter of 1948, as compared to the same period in 1947, man-day losses in California actually showed a decrease of about 50 per cent, according to the report of Paul Scharrenberg, State Director of Industrial Relations.

Statistics released by the U. S. Bureau of Labor Statistics show that during the first three months of 1948, man-days lost in California totalled 235,800, compared with 460,700 a year ago. Work stoppages in California numbered only 38 for the first quarter of 1948, but there were 64 during the same period of 1947.

Endorses Gold Standard

The Economists' National Committee on Monetary Policy, of which Professor Benjamin M. Anderson of the University of California at Los Angeles is chairman, has gone on record in favor of a gold-coin monetary standard and system as embodied in the Buffett bill before the last Congress. Other committee members from the West are Professors Roy L. Garis, J. L. Leonard, and Clyde W. Phelps, all of the University of Southern California.

Institute Meeting

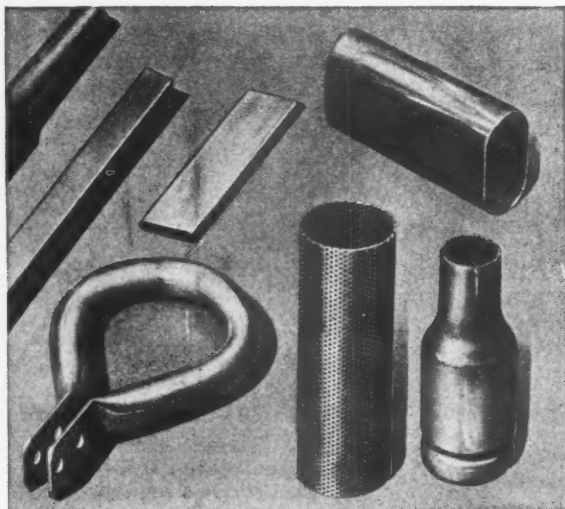
One of the regional meetings of the American Iron and Steel Institute this fall will be held at the Mark Hopkins Hotel, San Francisco, November 5. Subjects and speakers for this meeting include: Raw materials, Dr. Walter Mathesius, Geneva Steel Co.; wire and wire products, Francis Eickelman, Colorado Fuel & Iron Corp.; quality control in the manufacture of basic steels, H. C. Swett, Bethlehem Pacific Coast Steel Corp.; and flat-rolled steel by R. G. Glass, Geneva Steel Co., and O. L. Pringle, Columbia Steel Co.

General Electric Issues Materials Handling Film

How to reduce industrial costs through more efficient materials handling equipment and methods, is the subject of a new program recently introduced by the General Electric Company. Part of G-E's long-range "More Power to America" program, it consists of a 20-minute color motion picture combining animated cartoons and actual plant scenes, and a 96-page application manual.

The film demonstrates the loss of time and money through old-fashioned methods, and then shows modern materials handling equipment in operation, from small self-propelled hand trucks to giant cranes, stressing the versatility of the battery operated fork truck, the use of the magnetic crane to lift unwieldy objects, use of diesel-electric locomotives for spotting and switching cars, and the tremendous lifting capacity of various overhead cranes.

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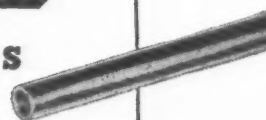
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WESTERNERS AT WORK...

California

Transportation

Charles Elsey, president of the Western Pacific Railroad Company for the past 16 years, has announced his retirement as of December 31, after 41 years of continuous service with the road. He will be succeeded by Harry A. Mitchell, vice-president and general manager, who will himself be eligible for retirement next June. At that time, Frederick B. Whiteman will take over as president. The latter, formerly general superintendent of Western lines for the C.B.&Q., has been named executive vice-president of Western Pacific.



T. G. Maddox

T. G. Maddox, for the past six years operating manager and district manager in Los Angeles and San Francisco for United States Lines, has been named traffic manager for the Port of Los Angeles. He has been active in transportation for the past 40 years, and is vice-president of the Los Angeles-Long Beach Propeller Club.

Steel

Alden G. Roach, Los Angeles, has been named president of the Consolidated Western Steel Corporation, following its purchase of all assets by a new United States Steel subsidiary

of the same name. Mr. Roach formerly headed Consolidated Steel Corporation. According to President Benjamin F. Fairless of U. S. Steel, no change in the present basis of operations is contemplated.

Frank E. Scheliga appointed superintendent of the rolling mill at the Torrance plant of Columbia Steel Co.

Oil

Norman Anderson and D. F. Purdy were recently promoted by Richfield Oil Corporation. Anderson is now general superintendent of pipe lines, while Purdy has been named chief engineer.

P. C. Thomas, manager of the Southern California division of the Shell Oil Company, has been transferred to San Francisco headquarters as general sales manager for Shell's Western operations. He has been succeeded in the Los Angeles post by R. D. Stetson.

Claude E. Swift appointed vice-president in charge of research and patents for Union Oil Company of California.

Aircraft

Burt C. Monesmith becomes works manager for Lockheed Aircraft Corporation, succeeding F. P. Holter, who joins G-E at Bridgeport, Conn. Monesmith has been general superintendent of the Constellation Project at Lockheed, and previously was an executive at Douglas. Edgar A. Williams rejoins Lockheed as assistant to the works manager, after serving about two years as southern California manager for Anderson Nichols Co., management consultants.

Food

Oscar F. Hayes succeeds G. F. Mason, who retired in September from the post of Western regional manager for the manufacturing division of H. J. Heinz Company.

Paul Young has been appointed general manager of Golden State Company, Ltd. He has held the post as acting general manager since March, having been brought to the San Francisco headquarters from Chicago, where he was vice-president and manager of the Golden State Sales Corp.



Paul Young

M. E. Wengenheim elevated to executive vice-president by Flotill Products, Inc., Stockton.

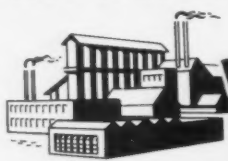
Manufacturing

A. A. Schueler has been appointed general sales manager of the Benbow Manufacturing Company, Redwood City, according to the announcement of President Justin M. Jacobs. He recently resigned as general sales manager for Square D. Western Division.

Miscellaneous

R. E. Fisher, who retired in 1947 as vice-president and public relations director of the Pacific Gas & Electric Company, has gone to Rome to take charge of the power and fuel program in Italy for the Economic Cooperation

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Morck Speed-Line 100% Pure Hog Bristle Brushes are built by craftsmen with years of experience in meeting the demands of industry... for heavy maintenance work or on the production line. They're built to last... serviceable right down to the heel.

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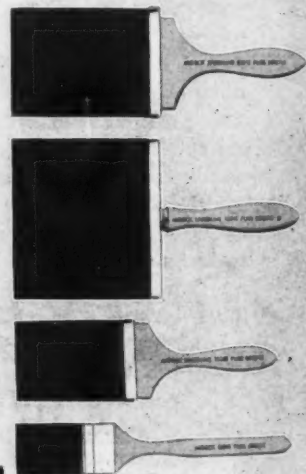
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SEE THEM AT YOUR DEALER'S

Administration mission headed by J. D. Zellerbach. Mr. Fisher had been regional director of the Far East America Council of Commerce and Industry.

Alvin Hewitt, formerly executive vice-president of California Manufacturers Association, is now vice-president of Adel Precision Products, Burbank.

Thomas Morrin is the new chairman of electrical engineering research at Stanford Research Institute, according to an announcement by Dr. J. E. Hobson, director. Morrin recently left the Raytheon Manufacturing Company to join the Institute, and prior to that had seen extensive duty with the Navy during the war.

Harley Hise, San Francisco financial and business executive, has been named chairman of the Reconstruction Finance Corporation, for a term expiring June 30, 1950. He replaces John D. Goodloe, resigned.

J. J. Synon, until recently public relations representative for the Western Oil & Gas Association, has been named an account executive on the staff of Chris Lykke & Associates, San Francisco advertising and public relations company.

Carl E. McDowell has resigned as assistant to the executive vice-president of Pope & Talbot, Inc., to take the post of assistant professor of International Trade at the Stanford University Graduate School of Business. He will continue to serve Pope & Talbot in an advisory capacity.

Colorado

Dan M. Kentro has rejoined the Shenandoah-Dives Mining Company, Silverton, as manager. He was metallurgist for the company from 1936 to 1943, but left to work for American Cyanamid Company.

Louis M. Jones, Rangely, has been sent to Laramie, Wyoming, to take charge of shallow well operations for the Oklahoma Oil Company, Denver, following his appointment as production superintendent and manager.

Clyde T. Carson of Colorado Springs is the new president and general manager of Gold Empire, Inc., operating a group of gold mines in the Cripple Creek area. He succeeded John Kolman, deceased.

Roy E. Doty, district manager for the California Oil Company in Denver for the past three years, has been named a vice-president of the company, with his new headquarters to be in Chicago. Since early 1947, Mr. Doty acted as Colorado state chairman of the oil industry information committee.

Arthur E. Stoddard, H. E. Shumway and L. J. Bachman are three key executives of the Union Pacific Railroad who received recent promotions. Mr. Stoddard, general manager of the road's eastern district, has been named vice-president succeeding the late W. H. Guild. Mr. Shumway, assistant to the president, will take over as eastern district general manager in Mr. Stoddard's place, while Mr. Bachman, assistant to the vice-president, has moved up as secretary and assistant to the president.


Idaho

Lowell G. Woods is the recently appointed assistant supervisor of the Boise National Forest. He previously held a similar post at the Targhee National Forest, St. Anthony.

Harry Lucas, for the past four years district manager for the Washington Water Power Company at Moscow, has been made district manager, with headquarters at Lewiston. He is in charge of an area comprising Nez Perce, Lewis, Idaho and Clearwater counties in Idaho, and Asotin county, Washington.

(Continued on page 58)

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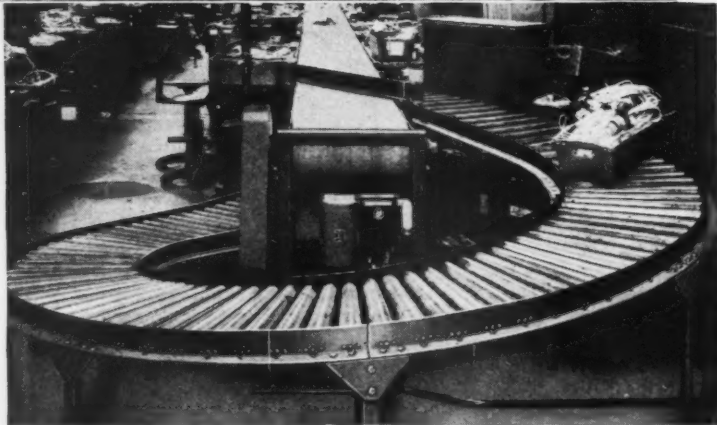
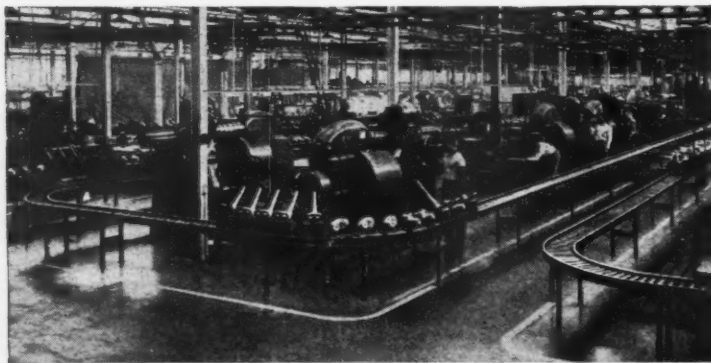
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WESTERNERS AT WORK

(Continued from page 57)

New Mexico

George Lusk, recently appointed manager of the Albuquerque Chamber of Commerce, was scheduled to take up his duties in mid-September, assisted by J. P. Murphy, whose resignation from the post becomes effective Nov. 1.

P. S. Dunn is the new manager at the Carlsbad works of the Potash Company of America, succeeding K. F. Peters.

Oregon

William B. Calvert named plant manager for Portland Woolen Mills. He is succeeded as superintendent by Walter A. Qualman, Jr., former plant manager for Moniteau Woolen Mills.

George E. Wallace, son of the founder, has been appointed vice-president and assistant sales manager by the George B. Wallace Company, Portland automobile dealers.



Robert E. Eby

Jack Edgecombe, formerly associated with the Weyerhaeuser Timber Company, is named sales manager for the Portland Shingle Company.

Edward S. Lohr, claims inspector for the Union Pacific Railroad, recently retired to his home in Portland after nearly 50 years in rail-roading.

Washington

Appointment of J. M. Haughey to the new position of sales manager has been announced by the Washington Iron Works, Seattle. He was formerly sales manager of the industrial division, Packard Motor Car Company.



J. M. Haughey

Freeman Schultz has been named executive vice-president and general manager of Juneau Spruce Corporation, replacing E. S. Hawkins, who resigned the general managership in June. The latter remains as vice-president and member of the board.

Colonel Oscar F. Carlson, formerly of Seattle, has returned to the city as resident representative at the Boeing Company for the U. S. Air Forces Air Materiel Command.

Sonduck & Schwenk Lumber Company, Spokane, which is changing its corporate name to the Northern Lumber Company, has announced appointment of O. A. Nystrom, Portland, as company president, succeeding J. L. Sonduck.

E. W. Holstad has been named Spokane district manager for the Standard Oil Company of California, replacing R. T. Vivian, who retired after 35 years of service. Mr. Holstad was as-

sistant manager of the Portland district for Standard Oil.

Robert D. Shine, former specialist in labor relations at the Oakland offices of Kaiser Services, has been appointed supervisor of industrial relations at the Mead Reduction Plant of the Permanente Metals Corp., Spokane.



Robert D. Shine

Bruce Elmore is named plant manager of the plywood division of Simpson Logging Company, Shelton, replacing R. D. Burrows, resigned.

Frank A. Stewart, Seattle, has been appointed director of the State Department of Conservation and Development. He had been managing director of the Washington Public Utility Commissioners Association.

Fred C. Schlemmer has taken over as manager of the Hanford Engineering Works, replacing Carleton Shugg, who was recently appointed deputy general manager for the Atomic Energy Commission. Mr. Schlemmer was formerly with the TVA at Chattanooga, Tenn.

Haldor Toreson, master carpenter of the bridge and building section of the Great Northern railroad since 1914, retired recently after 41 years. He has been succeeded by Elmer Johnson, master carpenter of the Kalispell division.

Charles A. Burckhardt, president of the Lake Washington Shipyards, Seattle, and a pioneer in the development of the Alaska canning industry, died August 23 at the age of 79. Mr. Burckhardt bought his first salmon cannery in 1906, and the Lake Washington shipyard was an outgrowth of repair work needed by his cannery ships.

L. H. Barnhart, Western Union manager at Pasco, has gone to Walla Walla to take a similar post. He has been succeeded by A. E. Wise, manager of the Chehalis office.

Utah

J. W. Loy, manager of the refining department of Wasatch Oil Company, Bountiful, has been appointed general superintendent of the Northwest refining department of Phillips Petroleum Company, parent company. He will have charge of refineries at Woods Cross, Pocatello, Idaho, Spokane, Wash., and Great Falls, Mont.

The Colorado-Utah office of the Bureau of Land Management has selected H. J. Vander Veer, Salt Lake City, as special regional consultant on mining matters. He is a geologist and mining engineer.

Clarence E. Groesbeck, 72, former president of the Utah Light and Power Company, died August 21 at La Jolla, California. Mr. Groesbeck had held several important executive positions in Western utilities, and at the time of his retirement in 1946 was chairman of the board of Electric Bond and Share Company, New York.

Five Utah experts were among those scheduled to address sessions of the American Mining Congress at San Francisco, September 20-25. They include E. H. Snyder, president, and C. M. Marquardt, electronic engineer, of the Combined Metals Reduction Company; Byron E. Grant, general superintendent of the U. S. and Lark mines of U. S. Smelting, Refining & Mining Co.; Richard N. Hunt, chief geologist of U. S. Smelting, and Clark L. Wilson, chief engineer of New Park Mining Co.

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Division of **HARRIS**  **Enterprises**

Military Orders May Catch Aircraft Industry Asleep

Private Flying Is in Doldrums; Lines Trying to Spread Traffic; Pan-Am Wants Over-land Flights; Manufacturers Beating Bushes For Metals to Make Appliances; First West Coast Tractor Plant

LOS ANGELES — If a certain Congressman's conversation with a newspaper reporter proves an accurate blueprint of the future, southern California's aircraft industry may soon have to do a rapid shift into high gear.

According to press accounts, Rep. Merrow of the House Foreign Affairs Committee says the Navy will build its 14,500-plane air arm up to full strength by next July 1—four years ahead of schedule.

Local aircraft plants so far have been slow to increase working forces because they expected to handle their present contracts without major expansions. Despite shortages in certain engineering skills, there has been plenty of production-line manpower. A quick advance of schedules might suddenly end this comfortable situation. It also might force subcontracting of much work now being done in the major plants' own shops.

If accord in the Russian situation should deflate the Congressman's war scare, another factor still is lurking in the wings. Little has been said publicly about the military's need for transport craft, but the Berlin air lift, with its backbreaking load on our air fleet, is demonstrating day by day that if the U.S. public wants a strong air arm, it must provide adequate equipment for swift movement of fuel and other supplies in time of emergency.

The 70-group funds, now nearly allocated, provided for only 28 Douglas and 107 Fairchild cargo planes. Unquestionably Congress will be asked for an additional appropriation for military transport. Since at recent estimates the industry will need 18 months to get into peak production on the models already scheduled, drastic revision in the present outlook may be expected before many months have elapsed.

Suppliers Shy

Major airframe companies say some would-be suppliers have been shying away from purchase orders bearing the rubber stamped standard paragraph to the effect that such purchases are "subject to the Renegotiation Act of 1948, as amended." The temperamental ones fear they can't

be sure just what their margin of profit might be if, some day, the contract should be reopened for renegotiation.

At this writing, official interpretation of the Act must clarify many points. Old-timers, however, scoff at such fussiness, pointing out that (1) everybody knows the Government isn't going to stand for excessive profits but will permit fair margins because the clear intent of recent legislation is to build a strong industry; (2) constant new rules and a mild state of confusion is a normal and harmless phenomenon in this business of selling to the Government; and (3) smaller manufacturers might as well get used to this particular bit of red tape, because they can't afford to overlook the possibilities of selling to the biggest of all customers.

Gloomy Outlook

The Government, indeed, is in a fair way to become not only the biggest, but nearly the only, customer for aircraft for a long time to come. W. J. R. Sims, director of Atlas Aircraft, phrased the plight of private plane manufacturers when he told a luncheon group lately that "In short, ladies and gentlemen, the (privately-owned airplane) industry is practically flat on its back. Not long ago, rainbow pictures were painted of flying clubs that would spring up overnight throughout the land, of residential developments built around private airports from which Dad would fly to work. . . . Late in 1915, slightly over 2,000 units were produced . . . in 1946, nearly 35,000 . . . but in 1947 production slumped to 15,000 . . . total production may drop to near 7,000 units by the end of the year. . . ."

The industry's other big customer, the airlines, can be expected to yield little business for some time. RFC is figuring out just how extensively it can help refinance the major lines out of their unseaworthy financial condition, with the industry's losses currently running about \$20,000,000 a year.

A series of general fist fights meanwhile is going on among individual lines, with the umpiring Civil Aeronautics Board the

target for most of the pop bottles. CAB's formula of a 10 per cent fare boost—third such increase in two years—may price the airlines nearly out of the market, for air travel will cost nearly twice as much as Pullman fares. American Airlines, still aching from a \$5,000,000 half-year loss following temporary withdrawal of its 50 DC-6's for re-investigation, has flatly refused to boost fares on its bigger ships, carrying 65 per cent of its traffic.

The non-scheduled airlines charge that the big air lines, with too-high overhead costs, want the taxpayers to underwrite this alleged inefficiency by mail subsidies. Three Los Angeles companies—the non-scheduled Standard, Viking, and Airlines Transport Carriers—want to start a "coach-instead-of-pullman" air service, with trans-continental trips costing about \$50 less than on the big lines. They would accomplish this reduction by doing away with hot meals, downtown check-in stations, and elaborate reservation systems. These three lines have joined to fight CAB's charge that in flying so often, these companies have become unauthorized scheduled lines.

Schedule Troubles

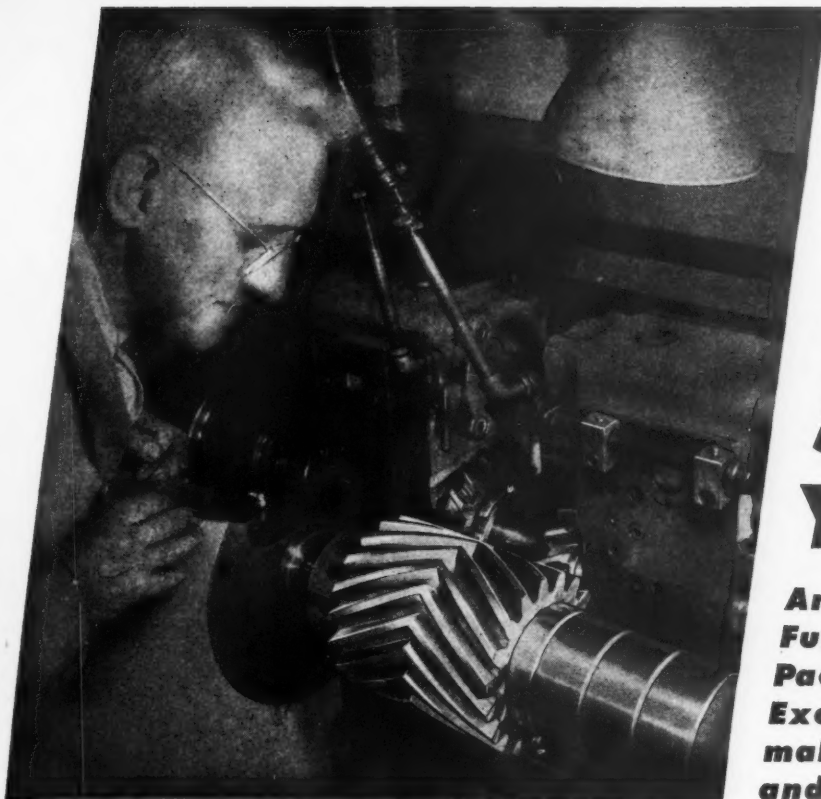
Major airlines protest that in order to hold their franchises, they must maintain regular daily schedules, although more people fly during the latter part of the week, leaving Monday, Tuesday, and Wednesday flights with many unfilled seats. They complain that the non-scheduled lines sit idle during the dull days, then put all their planes into the air and skim off the cream of the week-end traffic—leaving to the major lines the unprofitable hauls.

American Airlines wants to offset this competition by offering half-fare rates to family members on dull days. Pan-American Airways and American Overseas, expecting a winter drop in ocean travel, plan a 25 per cent slash in overseas fares. PAA also is experimenting with "tourist class" Clippers on the run between Puerto Rico and New York, using larger planes and eliminating such extra service as free meals.

(Continued on page 62)

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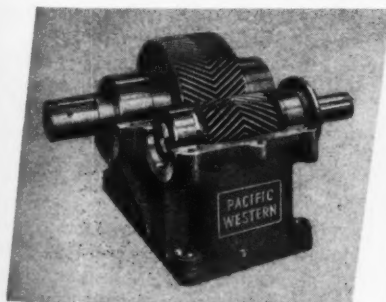
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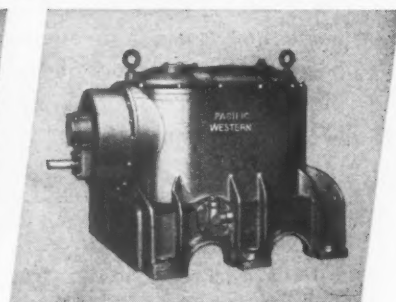
FAST DELIVERY ON MANY POPULAR TYPES AND SIZES OF SPEED REDUCERS FROM STOCK



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Vertical Speed Reducer

(Continued from page 60)

Most lines, in fact, would be glad to do away with free meals, although a few still are adding touches of glamour to intrigue the carriage trade—witness American's three big D-6 flights out of Los Angeles, which greet incoming and outgoing passengers with a brand new red carpet rolled to the plane ramp. (One cynical observer reports passenger reaction as follows: "They either walk around the carpet to keep it clean, take off their shoes, or wonder who the hell is coming in!")

Fred Miller, whose non-scheduled Air America, Inc., has been doing a thriving business in \$99 transcontinental flights, says his cut-rate service is not seriously cutting into the main source of airline busi-

ness, but rather is tapping a hitherto unexploited field. Careful surveys, he says, show most passengers either (1) never flew before, or (2) habitually used train or bus.

Pan American Airways is fighting mightily for permission to fly its Clippers overland, linking 13 U. S. cities. PAA argues that its competitors, including even foreign-owned airlines, have this privilege, that passengers would benefit from non-change service to foreign destinations, and that U. S. taxpayers might reduce their mail-pay burden by sundry millions of dollars through prospective operational economies.

The other airlines, presenting a solid front in opposition, have helped run up

an all-time-high total of 8,000,000 words in sizzling testimony, which CAB is laboriously trying to digest from its 5582 legal-size pages of transcript—a stack which, PAA points out, is 12 feet high, or at least two feet taller than the average elephant.

Any blind man can see this excited and upset industry is not in a position to invest heavily in new "rolling stock" until its major members are back in the black. Government business, or nothing, is virtually the choice. So great is the job to be done, however, that there will be enough work to operate the aircraft manufacturing industry at a comfortable and profitable level over a period of considerable length.

The aircraft industry is lucky that it uses aluminum instead of steel as its main raw material. Some one has estimated that the steel industry, at its present rate of operation, can produce all the steel needed for the 3366 airplanes recently ordered in a matter of three hours or so, although, of course, much aircraft steel consists of special alloys calling for highly controlled production. The present aircraft program would involve some 15 days' output of the aluminum industry.

Other local manufacturers, their hair still standing on end from the recent steel price increases—including Kaiser's \$30-a-ton advance—wish they were equally well off for materials. Some large appliance manufacturers, accustomed to buy directly from the mills, are now having to send scouts all over the country to pick up warehouse sheets.

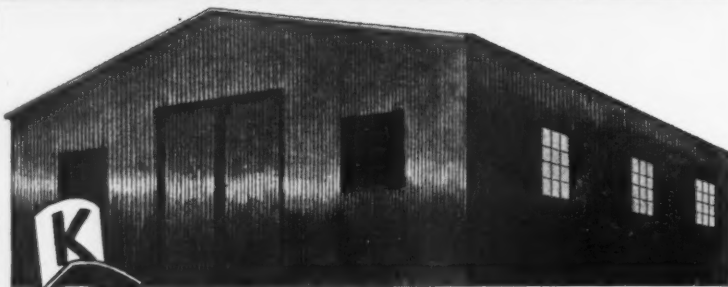
Local industry is hoping that the Bonneville Power Administration's recent allowance of extra power to northwest aluminum producers will mean an enlarged supply of sheet for this area. Some plants have been able to substitute aluminum for steel despite the extra cost, among them the widely publicized Davis Motor Co. of Van Nuys, which is getting into pilot production of its new three-wheel car. Aluminum is used in the vehicle's body work. Present schedules call for output of 50 cars a day within three months, with a long-range goal of 500 cars daily. The "divan sedan" model will sell at \$995 F.O.B. Van Nuys.

First full-sized tractors to be produced on the West Coast are being turned out at the Azusa plant of Jumbo Steel Products Co., where production is expected to reach 400 a month by next January.

The Los Angeles Chamber of Commerce has been congratulating itself on contriving to get the Stanford Research Institute to extend its operations to this area. A staff of brilliant scientists, already distinguished for their work on secret war weapons, will turn their energies to local industrial problems in such fields as radar and television design, soil conditions, petroleum chemistry, ceramic clay, high-speed photography, and technical developments in aviation. Results of a piece of research will be kept confidential and will become property of the firm that foots the bill. Thus top-



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Here's one for the book! The West Coast's first application of the Taft-Hartley Act's provisions against "feather-bedding" came recently in a case where a local contractor had been required to pay six cement finishers on a job where only two could work. The remaining four merely stood by and watched, and when told they would not be required, said, "If four of us go, all go." NLRB's local office, backed by Washington headquarters, ordered the union to reimburse the protesting contractor.

CIO Auto Workers have just experienced their first local loss of an election on the "union shop" question, having failed to get a majority vote at North American.

Despite the golden predictions of post-war prosperity, world trade is bringing no bonanzas to local industry. Both imports and exports have fallen off at Los Angeles harbor, as generally throughout the nation. Dollar-rich Latin-American countries have spent so much of their war savings for U.S. goods that only an increased flow of imports to the U.S. can keep up the business. Latest import developments, however, have been not from the South but from Europe. Recruits to the auto industry's West Coast parts subcontracting movement have viewed with keen interest the unloading of several large cargoes of foreign-made cars, being marked here at prices substantially under the U.S. product. A single shipload recently brought 395 of the peewee vehicles.

One local firm to find a new formula to the foreign exchange problem is Rheem, which has formed an association with Eindhoven Vatan N.N. of Koog de Zaah, Holland, to build a steel shipping container factory that will be Europe's most modern. The 30,000-square-foot plant is in a suburb of Amsterdam.

The local industry with perhaps the biggest stake in world business conditions is running into increasing difficulty in penetrating an "iron curtain" abroad. Eric Johnston reports that movie audiences outside the U.S. are larger than ever, but foreign governments, particularly the British, are subsidizing home production of films so extensively that the U.S. product, which in 1946 brought 120 million dollars rolling back across the sea into Hollywood coffers, yielded only 90 million in 1947 and next year may not top 70 million.

Twentieth-Century Fox's own version of the film industry's new "Marshall Plan" is a program for making 12 "A" films in England, Sweden, Italy, Germany, and possibly France. Immediate effect on the local industry was a reduction in the shooting schedule which had called for 22 films to be shot in the studio's Hollywood plant.

Into this gloomy picture has stepped Howard Hughes, fresh from his recent

jousts with Senator Brewster and thirsting for new worlds to conquer. When the fiery plane maker acquired a controlling interest in RKO from Floyd Odium—who in turn moved deeper into the airplane industry by taking a directing role at Convair—things began to happen in this rapid-fire sequence:

(1) Reassuring statement from RKO President Peter Rathvon to the staff, containing the comforting intelligence that "Mr. Hughes contemplates no wholesale firings . . . he has no army of hungry relatives, waiting to take over your jobs. . . ."

(2) Speedy exit of Mr. Rathvon.

(3) Ditto exit of Dore Schary, talented producer who, immediately upon clashing

with Hughes' production policies, resigned and was snapped up by MGM.

(4) Fifty per cent reduction in studio staff, beginning with publicity men and writers and culminating in cancellation of nearly all pictures previously planned.

New sensations are spontaneously generating at the rate of approximately one per minute, leaving the bewildered studio staff in the condition of the heroine of the celluloid serials as she hangs over the cliff, waiting to see what new peril lies in store.

For Hughes the next major project, it is rumored, will be to get his huge flying boat out of the dock where it lay while Congress was erupting in Washington, and take it into the air to see if it will fly, with Hughes himself at the controls.

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Maritime Strike Clouds Have Their Silver Lining

Coast Less Dependent on Shipping Than Formerly; Operators Determined on Victory and Look For a Generally Improved Situation After Settlement

SAN FRANCISCO—Even if the current maritime strike lasts six months, as some close observers in labor ranks forecast, it cannot be as disastrous to the economic life of the West as the big strike of 1934, for three reasons. First, the Pacific Coast is less dependent on the East for its fabricated materials than before the war; second, it also has less outbound cargo, either to European or Far Eastern destinations; third, the railroads have been handling a far greater proportion of the transcontinental traffic than in earlier years.

As far as the maritime employers are concerned, they feel they have come to the point where the Harry Bridges domination of the situation can no longer be endured, and where there is a good chance of winning. The government no longer owns all the ships and therefore cannot force the operators' hands, as it has done in the past. Furthermore, the government is not as sympathetic to labor appeals as it once was even though about 30 per cent of the outbound cargo consists of army and navy shipments.

Of course considerable diversion of cargo to Atlantic and Gulf ports is bound to ensue, and it may be a long time before all of it comes back, but in the end the economy in time and money by shipping through Pacific Coast ports will be in the West's favor. Once the labor issue has been settled, then there will be a chance for the new Western Transportation Conference, organized last spring, to iron out the accessorial charges and other hindrances that have put the Coast ports in an unfavorable position.

The lessened dependence of the Coast on its ports is indicated in such facts as the one dug up by the San Francisco Bay Area Council, that in five counties surrounding the bay two out of every wage jobs represents job-opportunities which did not exist in 1940. In two of the counties, Alameda and Contra Costa, on the east shore of the bay, the increase in factory jobs between 1940 and 1947 outdistanced the combined employment in other fields—wholesaling, retailing, finance and

insurance. This increase amounted to 76,857.

Weekly paychecks in manufacturing plants in the area averaged \$61.94 in July, 1948, as compared with \$31.45 in July, 1940, and \$60.81 at the height of wartime activity in July, 1945, the Council reports.

Among the new industries in the Bay Area are the United States Pipe & Foundry Co. of Burlington, N. J., who have purchased a 35-acre tract in Richmond, where they will erect a cast iron pressure pipe producing unit. The product is used in waterworks systems, sewage works, gas systems, oil refineries and chemical plants. Other new eastbay establishments include a \$500,000 multiwall paper bag plant in Berkeley to be constructed by Ames Harris Neville Co. of San Francisco.

Further steps toward providing more electric power for California are being taken by Pacific Gas & Electric Co. in starting construction of a \$50,000,000 steam generating plant in Contra Costa County to be ready for operation in 1951. It will have a capacity of 402,000 horsepower, and will be similar in design and capacity to the new Moss Landing steam plant on Monterey Bay announced a few weeks earlier.

The recent episode in the history of Rosenberg Bros. & Co., titan of the dried fruit packing industry, is an interesting example of how a dominating organization may be heartily cursed by its competitors, yet in the last analysis they would not want to see it pass out of the picture. Last winter Rosenberg Bros. was sold to Nathan Cummings of Chicago, who had earlier gotten control of Consolidated Grocers Corp. Objection to the deal was raised by the Department of Justice, on monopolistic grounds, so Mr. Cummings announced that "Rosie," as the big dried fruit organization is known throughout the dried fruit industry, would have to be broken up and sold piecemeal, as he could not find a buyer.

This created consternation, because it was instantly realized that without "Rosie" there would be no one to make the market, and general confusion would follow.

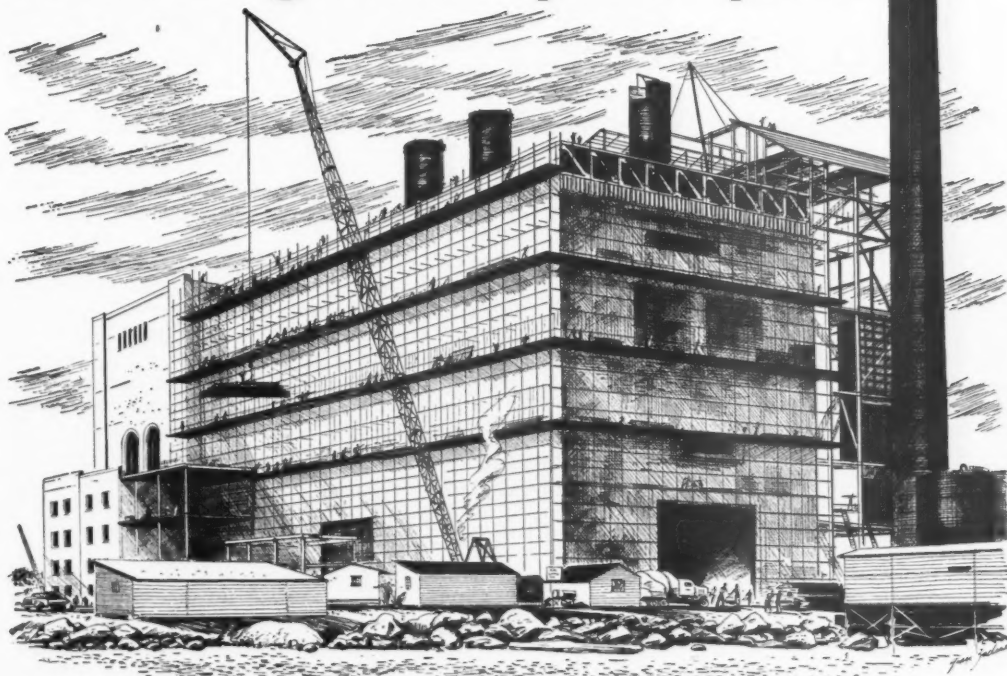
Finally a syndicate headed by Blair & Co. of New York was formed to buy out Mr. Cummings, who made a nice profit for himself. And now Rosenberg Bros. will continue on much as before, with Arthur Oppenheimer continuing as the spark plug as he has for so many years.

The dried fruit industry appears to be developing more of a merchandising sense and becoming less dependent on government purchase deals to bail the growers out of difficult market situations. More of the prunes, peaches, apricots, raisins and pears are going into consumer packages all the time, and interest in packaging was considerably stimulated by the packaging show held in San Francisco in July. This was the first large-scale demonstration of packaging machinery on the Pacific Coast, and attracted much attention. It will be repeated next year.

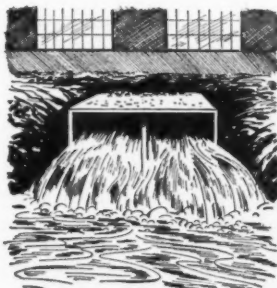
Diesel engineering occupied the limelight for two days in August, when key representatives of Pacific Coast diesel engine manufacturing companies and interested educators from Western colleges and universities participated in an educational conference in the San Francisco Bay Area. It was conducted jointly by the Diesel Engine Manufacturers Association, the University of California, and California Research Corporation. Part of the sessions were held at the University of California, and the remainder at the Richmond Laboratories of California Research, where the group participated in discussions of the use and performance of diesel fuels and lubricants.

Stanford Research Institute, already showing many signs of alertness and aggressiveness, now reports that it has completed computation of how fast the country's airframe industry can expand in the event of a national emergency. This study was performed for the government, and requires a computation of only an hour or two, once the basic data are in hand, and is expected to provide a sure scientific way to estimate schedules, replacing long, uncertain and guesswork methods used during the war.

1000 men rush expansion of P. G. and E.'s greatest power plant



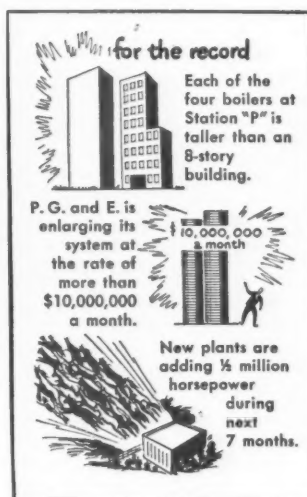
Near the lapping waters of the Bay at Hunters Point in San Francisco, P. G. and E.'s Station "P" is rapidly growing from a good sized power plant into a giant with an electric generating capacity of 360,000 horsepower. When the new power goes on the line this winter, Station "P" will be the largest generating plant on P. G. and E.'s vast system. And it's just part of our postwar construction program which is adding nearly 2,000,000 horsepower to our power supply.



We put salt water to work at Station "P" Two tunnels, six by nine feet, will pour 230,000,000 gallons of Bay water daily through the plant to cool the steam from the turbine-generators. That's nearly three times as much water as San Francisco uses every day.



When Station "P" hits its maximum output, it will produce six times as much electrical power as it does today. Still other plants, both steam and hydro, are on the way to provide more power for Northern and Central California homes, farms and factories.



P. G. and E. PACIFIC GAS AND ELECTRIC COMPANY

110-1048

REGIONAL REVIEWS

CONTINENTAL DIVIDE

Basing Point Ruling Makes Home Town Plants Happy

Oil Exploration in Empire Is Paying Off in Blue Chips; Dewey Buys His Wagon in Denver; Directory Lists Colorado Manufacturers; Rocky Mountain Area Leads U. S. in Per Capita Income Increase

COLORADO SPRINGS, COLO.— Maybe it is the abandonment of the basing point system and maybe it is the invigorating autumn atmosphere in the Pike's Peak area of Colorado, but something has given this area a shot in the arm.

Announcement that the big steel mills of the Colorado Fuel & Iron Corporation at Pueblo, Colo., henceforth will ship products f.o.b. the mill is considered a turning point in the economy of the area. No-more-basing-point applies to Ideal's new 25,000-sax a day cement plant on the Arkansas River between Pueblo and Canon City.

All this means that industrial plants close to Pueblo, such as those in Colorado Springs, suddenly look a lot more attractive. The old basing point system equalized freight rates so that towns far from steel mills, cement factories and the like weren't at any great disadvantage. Not so today. The new trend is for industry to huddle close to the source of supply.

Property-Rich Chamber

In Colorado Springs the very enterprising Chamber of Commerce doesn't monkey around with landlords and landowners when it comes to providing attractive sites and quarters for industrial enterprises looking for a home. Instead, the Chamber has laid cash on the barrelhead and purchased the most valuable factory sites in the whole Pike's Peak area, to use in competing for new payrolls.

The factory sites taken by the Chamber within the past month are just north of Colorado Springs on the highway to Denver, between two railroads and immediately adjacent to factories of Alexander Industries, Aircraft Mechanics, and other thriving local industries already known from coast to coast and abroad.

Another break in the same direction came last month when the \$28,000,000 Peterson Field layout, complete with buildings, trackage and everything imaginable, was deeded over to the City of Colorado Springs—for peanuts. Already a few small enterprises have moved in,

but it will be weeks before the Colorado Springs city fathers have worked out plans for breaking the great airport into industrial sites. But anybody who is looking for a likely spot needn't look any farther!

Cheyenne Plant Activated

What was Cheyenne, Wyoming's, biggest industry during World War II, the modification center where B-29s were readied for Pacific battle duty, again is showing signs of life and activity. With a three-million-dollar modification contract from the U. S. Navy all but signed and sealed, the Denver firm of Mountain States Aviation, Inc., is getting set to utilize a sizable part of the Cheyenne plant for altering 450 of the Navy's biggest flying battleships.

Incidentally, the big army post at Cheyenne, Fort Warren, has been put on a permanent basis and is mushrooming again. Kissing the boys goodbye is the best thing Cheyenne does, next to putting on Frontier Days, the rodeo that always lives up to its boast, "The Daddy of 'Em All."

Happy Oil Men

Maybe it doesn't tally up to much in production figures as yet, but the enormous exploratory and drilling program being carried on by the nation's leading oil companies in the Rocky Mountain region is paying off in blue chips. The operators who were pretty worried when the war ended, not knowing where the oil to fight the next war was coming from, have started to whistle a merrier tune. Wyoming, Alberta, Colorado, Montana, New Mexico and possibly even Utah and Arizona have come out from under the sagebrush to loom large on the oilman's map. Important discoveries have brought about the change. To name a few: Wyoming's Hamilton Dome, Sand Draw, Mush Creek, Church Buttes, Poison Spider, Ant Hills, Lost Soldier, and a score of other oil fields have witnessed finds that will be years reaching full development status.

Colorado has its great Rangely Field, where production is due to double this fall

when a new pipeline to Salt Lake City's new refinery (Standard of California) goes into operation.

Another nice double-barreled find in Colorado was revealed last month when the Texas Company, Frontier Refining Company and Sunray Oil Corporation of Tulsa opened a second producing horizon at the Maudlin Gulch field near Wilson Creek in northwestern Colorado. Maudlin Gulch is an area already littered with small oil fields and one scheduled for long and costly exploration designed to open up some more Rangely Fields, if possible.

Eastern Colorado now is beginning to have its turn again, after being treated as a stepchild for years during the frenzied oil development of Rangely. If space permitted, the rest of the region could be reviewed, including Edmonton's fabulous LeDuc Field where the wild Atlantic No. 3 still is violating all rules of good behavior and swelling Imperial Oil's bankroll scandalously.

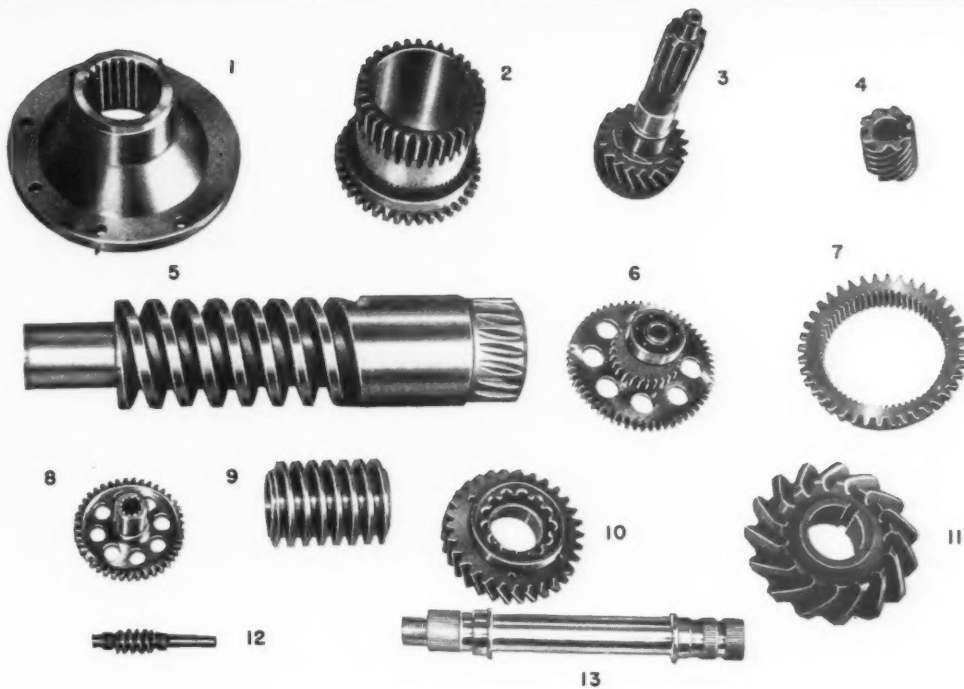
Dewey's Little Red Wagon

Don't ask us why, but that noted Empire State farmer and public administrator, Thomas E. Dewey, recently bought a Winter-Weiss farm wagon from Denver's most versatile manufacturer. There is no truth to the report that it is a little red wagon. It is a big wagon, and the color is nobody's business.

Winter-Weiss didn't become one of the Rocky Mountain region's largest manufacturing concerns overnight. Twenty-five years ago Henry A. Winter joined hands with Adolph Weiss in a modest shop for making motor truck bodies. Today they employ 250 men and women and have a plant in downtown Denver that covers 80,000 square feet. Their products go all over the world.

Making truck bodies still is an important part of the business, but W-W now manufactures heavy trailers for moving freight and machinery, farm and ranch equipment, portable drilling machines, livestock spraying equipment and wagons

(Continued on page 68)



1. Flange for transportation equipment • 2. Planetary drive for oil field equipment • 3. Transmission for buses • 4. Commercial worm • 5. Hydraulic valve worm • 6. Aircraft cluster gear • 7. Spline gear for planetary system • 8. Power take-off aircraft gear • 9. Commercial worm • 10. Synchro-mesh gear for bus transmission • 11. Spiral mitre automotive gear • 12. Precision-ground aircraft worm • 13. Torque tube for aircraft

It's **ADVANCE** in the West for Better Gears

Aircraft

Automotive

Industrial

You can depend upon **ADVANCE** to meet your every gear need expertly, economically, and promptly. At our plants in Los Angeles and San Francisco are complete facilities for designing and cutting aircraft, automotive, and industrial gears of every description. Many of our machines and processes are the only ones on the Pacific Coast.



Spiral Bevel... Straight Bevel...
Spur... Mitre... Helical...
Worms... Worm Gears... Sprockets...
Racks and Pinions... Serrations...
Straight and Tapered Splines... All made in metallic or non-metallic finishes.

DESIGN ENGINEERING RESEARCH

ADVANCE GEAR & MACHINE CORP.

5855 HOLMES AVENUE, LOS ANGELES 1, CALIFORNIA
BRANCH: GEARS, INC., 20 LUCERNE ST., SAN FRANCISCO 3, CALIFORNIA



Silicones are Salesmen

In a competitive market your strongest selling point is a superior product. Constant vigilance is required, however, to maintain that superiority. That's why top management men as well as design and production engineers are taking such keen interest in our silicone products.

With this family of new engineering materials, designers are able to do all sorts of previously impossible things. Skillfully used, Silicones can give you a sound, competitive advantage. Take silicone electrical insulation for example.



PHOTO COURTESY AUTOMATIC TRANSPORTATION COMPANY
Skylift Electric Truck motors are wound with DC Silicone Insulation which has 10 times the life and 10 times the wet insulation resistance of Class "B" insulation. DC 44 Silicone Grease in the bearings has about 8 times the life of petroleum grease.

Here's an example of the way Automatic Transportation Company of Chicago capitalizes on the competitive advantage our silicone materials give them. Recent ad copy carries this headline in bold-face type.

**Only Automatic Skylift Trucks Give You
"BURN-OUT PROOF"
Silicone Insulated Motors**
Skylift Means Uninterrupted Material Handling

That's good selling copy and it's backed up by the amazing stability of our silicone products in all of their various forms. You may be able to improve or protect your competitive position by keeping in touch with Silicone developments through the branch office nearest to you.

Data on all of our DC Silicone Products is given in Catalog No. XI-15.

**DOW CORNING CORPORATION
MIDLAND, MICHIGAN**

Atlanta • Chicago • Cleveland • Dallas
New York • Los Angeles
In Canada: Fiberglas Canada, Ltd., Toronto
In England: Albright and Wilson, Ltd., London



(Continued from page 66)

for use on farms—maybe even band-wagons, for politicians to jump onto.

An offshoot of Winter-Weiss manufactures equipment for making potato chips by the ton. One W-W industrial product in use in Latin America as well as in many parts of the United States, is the Portadrill, a rig mounted on a truck chassis providing a highly mobile unit for core drilling, shallow oil wells and water wells, shot holes for seismograph work, etc.

Since making ships for the army and navy during the war, plus 8,000 army trailers of various sizes up to 45-ton jobs, Winter-Weiss has spread out and diversified amazingly. There is a connection between Winter-Weiss and Denver's really big Schwyder Brothers Trunk Company, biggest U. S. manufacturer of card tables and luggage, but beyond knowing that at least one of the Schwyder brothers is an important figure in W-W's top management, we don't know just what the connection is. Anyhow, all that Denver needs to begin to look like Los Angeles is about twenty more manufacturing industries like Winter-Weiss and Schwyder Brothers.

Manufacturer's Guide

We may have told you about the Denver Chamber of Commerce directory of manufacturers and distributors called "Where to Buy in Denver—1948." Quite a book, and the Denver Chamber of Commerce in the Chamber of Commerce Building will be glad to send you one.

But did we tell you about the "1948 Directory of Colorado Manufacturers," compiled by the University of Colorado Bureau of Business Research and published by the Colorado Resources Development Council? It is advertised for \$2.00 and probably is worth ten times that amount, but if you make a noise like an industry looking for a state to move to, you'll probably get it absolutely free along with quite a sales talk about Colorado and all its advantages, opportunities, etc. Address Elton K. McQuerry, executive director, CRDC, State Capitol, Denver.

Incidentally, if you are interested in such things, ask Mac to tell you about the Manufacturers Clearing House Service of CRDC. It is a center for exchanging ideas and facts on demand and supply of manufacturing facilities. Plants with idle equipment and labor use it to get sub-contract work, etc. Firms with jobs to farm out use it to locate sub-contractors seeking assignments.

Who is Prosperous?

It is something new for the people of the Rocky Mountain states to lead the nation, but that is what they are doing right now in the cash-in-the-bank department. National advertising figures—an index seldom in error—show that the mountain area with the adjoining highplains region

This is a fast-moving
efficient organization
of competent people,
always ready and able
to serve you well.

is far ahead of any other part of the United States including the Pacific Coast.

Figures released recently by the U. S. Department of Commerce also show some facts that are causing widespread reallocation of advertising appropriations. Canny merchandise men who buy circulation on the basis of the number of persons reached now see that income per capita is an important guide to spendable cash, and the highest income per capital isn't in the industrialized area but in relatively non-industrial or farming states.

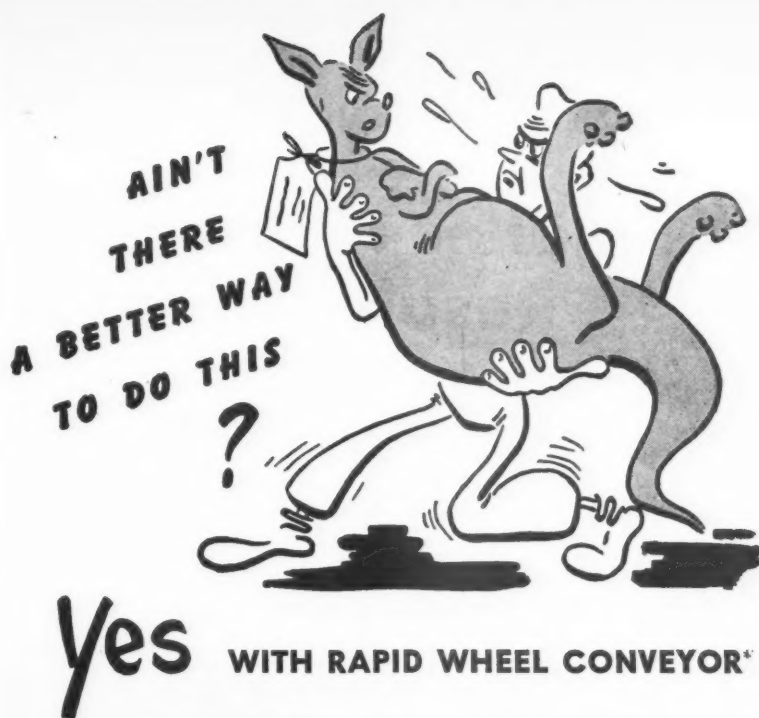
The national average (in per capita income increase since 1940) is exceeded by New Mexico, Idaho, Montana, Colorado, Utah, Wyoming and Arizona (in that order, with New Mexico showing the most substantial gain—possibly because of the Los Alamos and White Sands atomic projects). But less than the national average is registered by California, Oregon, Washington and Nevada. Even exceeding the Rocky Mountain states mentioned are the Dakotas and Kansas, where new-rich wheat kings are hiding behind every granary.

Since inflationary price rises have made the average man worse off than he was before the war, in terms of spendable cash, manufacturers looking for consumers able to buy are eyeing those whose incomes have shown the greatest gain. These, it is figured, still feel like spending money for things they want—and these, as shown by lineage of advertising placed by the big national advertisers and by government statistics, are concentrated very largely in the Rocky Mountain and high plains states of the West. Manufacturers who are so established as to make the most of this moneyed market are in a most-favored position for the years immediately ahead.

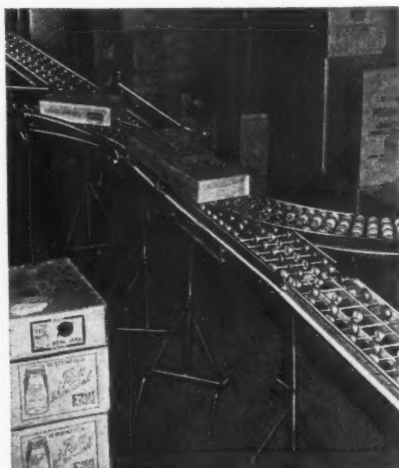
New Salami Factory For San Francisco

The familiar story of a foreign-born youth who came to America and made a success of his life was demonstrated again recently with the opening of the Buon Gusto Sausage Company, San Francisco, by Fred Casissa. The plant, costing approximately \$150,000, is the largest of its kind in the West, and has a capacity of 25,000 pounds of Italian salami and other sausages, per week. Equipment is all of stainless steel, and an overhead conveyor system allows moving of products throughout the factory and to the basement refrigerator units.

Mr. Casissa, who ran away from his home in Italy at the age of 11, has been a San Franciscan since 1920, and is also owner of the Buon Gusto Market, a super-grocery in the famed North Beach Italian-American colony of San Francisco. He has operated a sausage factory in conjunction with the store for a number of years, and the new facilities will allow wider national and international distribution of products.



Rapid-Wheel conveyor can move your materials, parts or products for 30 to 70% less.



The illustration shows incoming stock on its way to storage. **And not a man in sight!** The conveyor is loaded right at the truck or car . . . unloaded at the stacking point.

You can get Rapid-Wheel conveyor in either steel or aluminum . . . straight sections and curves in several lengths, widths and wheel arrangements, plus spur curves, switches and other accessories.

RAPISTAN

PROFIT BOOSTING EQUIPMENT

IT'S WISE
TO
CONVEYORIZE

*T.M.



MAIL
THE
COUPON
TODAY!

Get complete details
now on
Rapid-Wheel conveyor
or other
RapiStan equipment

THE RAPIDS-STANDARD CO., INC.
374 RapiStan Bldg., Grand Rapids 2, Michigan
Send bulletins on the equipment checked.

- | | |
|--|---|
| <input type="checkbox"/> Rapid-Wheel Conveyor | <input type="checkbox"/> Floor-to-Floor Units |
| <input type="checkbox"/> Rapid-Roller Conveyor | <input type="checkbox"/> Floor & Hand Trucks |
| <input type="checkbox"/> Portable Belt Units | <input type="checkbox"/> Steel-Forged Casters |

Name.....

Address.....

City.....Zone.....State.....

REGIONAL REVIEWS

THE PACIFIC NORTHWEST

Smaller Production Units One Result of Lumber Costs

More Than Double Number of Small Mills Since 1936; Idaho Deposits of Cobalt May Free U. S. Dependence on Africa; New Wage-Hour Code for Oregon Women, Minors; Kaiser Lab Opens

PACIFIC NORTHWEST. — There is no end in sight for the record demand for the Northwest's lumber, with both industry and construction snapping up every foot produced, according to reports presented at a recent semi-annual meeting of the Western Pine Association.

Although hindered earlier this year by flood conditions in some areas, the industry has been meeting the demand. However, the effects of inflation on the lumber industry have pushed costs upward alarmingly. During 1947, production costs increased \$7.34 per thousand board feet over 1946, with wage and salary costs up \$3.46 per thousand. The continuing spiral is seen in the fact that hourly earnings in May, 1948, were 12 cents higher than a year before.

One result of inflated costs has been a trend toward smaller production units, members of the Western Pine Association were told. Twelve years ago, mills producing less than 20 million board feet per year accounted for only 28 per cent of the total lumber; last year mills of the same type accounted for 44 per cent. Where there were only 131 mills holding membership in the association in 1936, in June of this year there were 281. There has also been an increase in the number of firms which do not operate their own mills, but take the production of small sawmills and dry, refine, grade and ship the lumber.

A New Source of Cobalt

With no fanfare whatever, a small crew of men far back in the primitive Blackbird district of east central Idaho, have been working toward production of cobalt that may free the United States from its dependency on the African Congo for our supply of this rare and precious metal. The nation's only known large deposit of cobalt lies in this area, according to the reports of Dr. John S. Vhay (printer, that's right) of the U. S. Geological Survey. The mineral has numerous uses in magnets, alloys and pigments, and was in top demand by the military during the war.

Presence of cobalt in Idaho has been known for the past 50 years, but smelting

companies, unable to extract it profitably, put a penalty on other ores delivered to them if they contained cobalt. It is a silver-white metallic element usually found associated in an ore state with iron, nickel, copper, silver and other metals. The Calera Mining Company is now preparing to work extensive leases in the area 20 miles southwest of Salmon, Idaho. It is planned to truck the concentrates to the nearest railroad (106 miles away) at McCall, for shipment to a refinery that is yet to be built. If predictions are well founded, the area should produce more than two million pounds of cobalt annually—about half of the annual U. S. consumption during the war.

Oregon Passes New Code

Labor, management and John Public got together in Oregon recently as a Conference Board and came up with a workable, and satisfactory, minimum wages and hours code for women and minors. Management was represented by Robert Bishop, Pendleton Woolen Mills; Ken H. Leash, Linnton Box Co., and Leo Baruh, Wadhams & Co.

There were three principal points of discussion, starting with a new minimum wage. Oregon's law formerly set 35c as the minimum for women and minors, but the Conference Board started with 75c and worked down, settling on 65c as a fair wage. Maximum number of hours that women and minors may work remains at 44 hours per week, but allowance was made for additional working time at overtime rates if requested by the employer and approved by the Wages & Hours Commissioner. Minimum rest periods remain at five minutes for each four hours of working time or major fraction.

When an employee is required to report for work and does so, but is not put to work or is furnished with less than half a normal day's work, the Board agreed that payment should be made for two hours' work at the employee's regular rate. Power failures, Acts of God or interruptions that an employer cannot reasonably foresee, do not come under this heading.

These recommendations were submitted

to the Wages & Hours Commission and were accepted under the title of Manufacturing Code No. 8.

Permanente's New Laboratory

Finishing touches are being put on the new Kaiser Aluminum Research Laboratory, established at the Permanente Metals Corporation's Trentwood Rolling Mills, Spokane. Headed by Dr. Paul P. Zeigler, a staff of experts occupies nine separate laboratories in the two story building erected for the purpose. Research will be conducted into many phases of light metal production and use, a primary project being toward the refinement and perfection of both reduction and fabricating techniques. Extensive work will be done also on the improvement of alloys, development of alloys having special physical and chemical characteristics, and the study of new cases for aluminum.

Two laboratories, one using x-ray diffraction equipment, and the other metallographic microscopes, will conduct extensive investigations of the internal structure of various aluminum alloys. Through this work these departments will be able to determine more completely than ever before the effects of various fabricating processes and thermal treatments on the physical, chemical and mechanical properties of aluminum alloys.

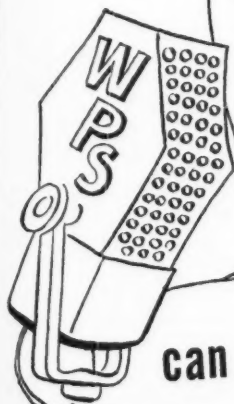
Northwest Survey

Current activities of the Raw Materials Survey include a decision to make an economic study of Washington and Oregon coals because of the possible future shortage of fuel oil, and to study Philippine raw materials that could be used to advantage by Northwest industry. Resumption of an economic study of Oregon clays by the Oregon state department of geology and mineral industries has been made possible through the engaging of Charles F. W. Jacobs, a ceramist who was formerly instructor at the New York State College of Ceramics, filling a vacancy left by Esther W. Miller in August, 1946. Mr. Jacobs has been engaged jointly by the department and the Oregon Ceramic Studio.

(Continued on page 99)

SECURITY QUIZ

for MANAGEMENT MEN



can you answer these important questions?

How many of your employees are buying U. S. Security Bonds regularly via the Payroll Savings Plan? (35% to 50% of employees buy Security Bonds on the Payroll Savings Plan in those companies in which top management backs the Plan.)

• *How does their average holding compare with the national average? (The national average among P.S.P. participants is \$1200 per family.)*

• *Why is it vital—to you, your company, and your country—that you personally get behind the Payroll Savings Plan this month? You and your business have an important stake in wise management of the public debt. Bankers, economists, and industrialists agree that business and the public will derive maximum security from distribution of the debt as widely as possible.*

Every Security Bond dollar that is built up in the Treasury is used to retire a dollar of the national debt that is potentially inflationary. Moreover, every Security Bond held by anyone means fewer dollars go to market to bid up prices on scarce goods.

• *Can't your employees buy Bonds at banks? Banks don't provide Security Bonds on the "installment plan"—which is the way most workers pre-*

fer to obtain them. Such workers want and need Payroll Savings.

• *What direct benefits are there for your company? In 19,000 industrial concerns operating Payroll Savings, employees are more contented. Worker production has increased, absenteeism has decreased—even accidents have been fewer!*

All these benefits accrue in addition to extra security for the individual who gets and holds Bonds. (Every \$3 invested pay \$4 at maturity.)

But even a plan with all these benefits requires the sponsorship of top management for real success.

• *What do you have to do? The Treasury has prepared a kit of material especially for you to distribute among certain key men in your company. This will be your part in the all-out campaign—starting April 15—for America's economic security.*

Make sure you get your kit. Be sure to give it your personal attention. Keep the Payroll Savings Plan operating at its full potential in your company. It's a major factor in America's security—your best business security!

For any help you want, call on your Treasury Department's State Director, Savings Bonds Division.

The Treasury Department acknowledges with appreciation the publication of this message by

WESTERN INDUSTRY



This is an official U.S. Treasury Advertisement prepared under auspices of the Treasury Department and the Advertising Council

October, 1948—WESTERN INDUSTRY

REGIONAL REVIEWS

THE WASATCH FRONT

Utah Coal Producers See Western Market Expanding

Shift From Oil and Gas to Coal Promises Even Greater Demand; Loss of Export Trade Fails to Affect Market; Coal Production Doubled Since Pre-War Era; Development of Phosphates Urged

SALT LAKE CITY—The future is beginning to take on a rosy hue for Utah coal producers. Before the war, with production running around three and one-half million tons annually, they sometimes wondered if the industry hadn't been expanded far beyond its available market. And there was much pessimistic talk that a large slice of the producing capacity would have to be squeezed out before the remaining mines could get on a solid economic footing.

Under the impact of the war, production climbed to 4,000,000 tons, then 5,500,000 tons, then 6,500,000 tons, and finally in 1944 to more than 7,000,000 tons.

Coal Demand Continues

This proved nothing except that war produces a terrific demand for coal. But 1945 and 1946 held close to 6,500,000 tons and 1947 soared above the 7,000,000 mark again. This continuing high demand was held up for a time by export business (which couldn't be expected to last because of fantastically high transportation costs). But this year Utah producers are out of the export business and production is still holding close to the 7,000,000 ton mark. So it appears to be a plausible assumption that the Western steel industry and other new coal consuming industries have created a market for Utah coal approximately twice as large as the pre-war demand.

But this is only part of the color in the rosy tinge. Industries are being forced to shift from oil and natural gas to coal because of shortages of the first-mentioned fuels. And coal-burning electric generating plants, now building or scheduled for this area and the Pacific Coast, will bring a demand for enormous quantities of coal. The Pacific Coast has long been the chief "outside" market for Utah coal, so any new demand there is bound to be reflected back to the Utah fields. The talk now is a future expansion of producing capacity rather than of a wringer job on existing capacity.

The reliance of this area on the growth of the Pacific Coast is being felt in many

industries other than coal. For example Dr. Elroy Nelson, acting director of the Bureau of Economics and Business Research, University of Utah, reports that "almost all of southern Utah's agricultural development is now affected by the California market. Before the war 90 per cent of Utah's eggs found a market in New York City. Now 92 per cent are moving to California. Row crops and meat animals are moving in increasing volume to the Pacific Coast.

The staff of the Utah state engineer have been analyzing the recent negotiated upper Colorado River basin compact. And their conclusions are decidedly encouraging to the many Utahns who had sadly decided that their state had been pretty well "negotiated" out of its heritage in that river system.

With a fully developed and regulated river, the water experts say, the compact will give Utah about 1,700,000 acre feet of water annually. This would be sufficient to take care of the proposed Central Utah and numerous small projects scattered around the southern and southeastern parts of the state.

Utah negotiators were unable to "sell" the other states on diversion for northern Utah projects but that part of the state, according to State Engineer Ed H. Watson, can be taken care of from the Bear River if Central Utah is built.

Bear Needs Regulating

The Bear, he reasons, must now be regulated for power production. If central Utah were built Bear River hydroelectric power could be largely eliminated by exchanges from Central Utah. The Bear could then be regulated for irrigation, making available for use some 750,000 acre feet which now wastes into Great Salt Lake.

Incidentally, Colorado, which sometimes "gets in Utah's hair," and vice versa, was more reasonable than the Utah negotiators expected her to be. The Coloradans compromised on several points which, had they maintained their original position, would have made an agreement impossible from Utah's standpoint.

The Utah Chamber of Commerce and the University of Utah's business and economic research bureau have teamed up to look for opportunities to develop natural resources around the state. A natural resource committee, representing the two agencies, has been touring the so-called hinterland counties, exchanging ideas and suggestions with local civic groups.

The protested steel freight rates from Geneva, Utah, to Pacific Coast points have grown mightily since they were first published by western carriers. But their continuation appears to be more vital now to the state's steel industry than when the case started. The \$8 rate has been hiked to \$11.60 by percentage increases. But if the general increases were applied to the old \$12 rate it would be a whopping \$18 per ton.

Use Own Phosphates

Utah, Idaho, Montana and Wyoming possess 60 per cent of the nation's phosphate deposits, yet the production from this area amounts to only 8 per cent of the yearly output. According to Assistant Secretary of the Interior C. Girard Davidson, farmers of the West are paying premium prices for this fertilizer that lies right in their own back yards, while Eastern farmers are getting it as much as \$60 a ton cheaper. Most of the phosphates processed into fertilizers for Western growers come from such sources as Florida and the TVA. The small amount mined in the West is mostly shipped away as raw material.

Except for the plant now going into operation in Seattle (discussed in this issue of *Western Industry*) there are only two small phosphate processing plants in Idaho and Montana. Western phosphate is particularly desirable, according to Secretary Davidson, because the ore also contains a number of critically short minerals such as nickel, zinc, vanadium, lead and fluorine.

With a public power source so close at hand, Mr. Davidson said, steps should be taken to further develop the electric furnace process of converting phosphate into fertilizer.

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LABOR

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INDUSTRIAL WEST

Are Fines a Part of Union Dues?

"SHALL the employers be required to deduct the penalty assessments or fines, levied on all members who fail to attend the divisional or combined quarterly meetings of the union, if the employer has received a written assignment from such members?"

This was the question put before an impartial umpire recently by the Furniture Employers' Council and the United Furniture Workers, Local 576 (CIO). According to the decision of the umpire, Michael I. Komroff, employers are required to do so.

Such a decision under the Taft-Hartley Act is of far more than academic interest to industry as a whole, as it is one of the first of its kind. It is pointed out by officials of the Furniture Manufacturers Association that not only because a violation of

the Labor Management Relations Act entails a possible fine of \$10,000 or a year in jail, or both, but furthermore, if an employee is discharged because he fails to pay his "membership dues" on the ground that fines are membership dues, the employer may be liable to an unfair labor practice charge and a back pay award if it be found that fines are *not* membership dues.

The Labor Management Relations Act provides that no deductions shall be made and forwarded to union representatives other than "with respect to any money deducted from the wages of employees in payment of membership dues in a labor organization." It is the contention of the Furniture Employers' Council that the questioned penalty assessments may not be withheld unless they are "membership dues."

In the case of this particular industry, the union passed an amendment to its constitution and by-laws after passage of the Labor Management Relations Act, to the effect that membership dues shall include "assessments, penalty assessments, and fines," when properly levied by the union. All members who have worked for an employer more than five days have been required to sign an "Authorization to Check-off Membership Dues."

In June, 1948, the Furniture Employers' Council notified the union that members would not deduct any fines from the earnings of employees after July 1, 1948, on the ground that the Labor Management Act of 1947 made such deductions illegal. The union took a contrary view.

(Continued on page 94)

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When Pan American Airways needed an aircraft buffet for its Convair 240s on the Central and South American routes—we got the job. Pan-American, familiar with our long aircraft experience, knew we could engineer, tool, fabricate and assemble the buffet in strict accordance with aircraft specifications and CAA design and strength standards.

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October, 1948—WESTERN INDUSTRY

THE WEST ON ITS WAY

ARIZONA

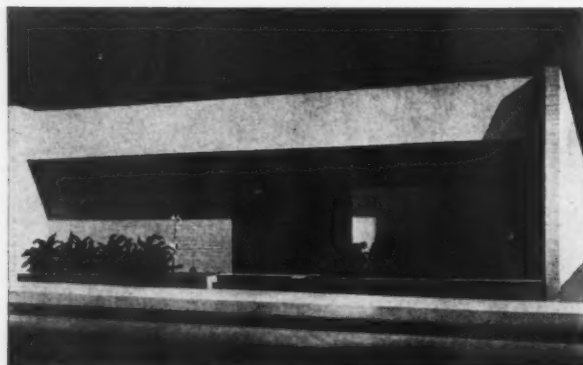
P-D BUYS MORENCI PLANT—Reconstruction Finance Corporation has announced sale of two wartime-built plants to Phelps-Dodge Corporation. They are a copper reduction plant at Morenci, and a copper refinery at El Paso, Texas, and have been operated under lease by Phelps-Dodge.

CALIFORNIA

GAS LINE FOR SAN DIEGO—Construction will start in January on a 97-mile pipe line from Riverside county to San Diego, linking facilities of the San Diego Gas & Electric Company to the Texas-California line of the Southern Counties Gas Company. Cost of the pipe line is estimated at \$4,000,000, and will furnish 50,000,000 cubic feet of gas daily.

UNITED MOTORS BUILDING—Construction is under way on the \$500,000 Berkeley office and warehouse building for the United Motors Service Division of General Motors Corporation. Upon completion, the company expects to double its present staff of 75 employees. John J. Moore Co., Oakland, is contractor on the job.

WEST ELECTRIC SOLD—Cutler-Hammer, Inc., Milwaukee electrical manufacturers, have purchased the business of West Electric Products Co., Los Angeles. W. G. Tapping, district manager for Cutler-Hammer, states that operating personnel will remain.



• New home of Faultless Caster Corporation, Los Angeles.

RYAN AWARDED CONTRACT—The Air Force, acting as procurement agent for the Army Field Forces and National Guard, has entered into a contract with the Ryan Aeronautical Company, San Diego, for 158 four-place Navion planes. The \$2,500,000 deal also calls for components and spares equivalent in dollar value to another 60 complete Navions.

STEEL PLANT COMES WEST—Facilities of the former plant of the Forrest Furniture Company, Inglewood, have been purchased by the Stor-All Corporation, Akron, Ohio, in a \$400,000 deal handled by the LeRoy D. Owen Co., Los Angeles. The property will house the West Coast branch of Stor-All for manufacture of portable steel storage units.

TOOL PLANT OPENED—A new and modern plant for precision tool and die making and stamping work has been opened at Culver City by NORLAC, firm operated by Leslie Glick and Frank Norman. The two started business in 1946 with production space of 13x32 feet, using an abandoned city bus for an office. Their present plant has 5000 square feet of space.

FORD EXPANDS WAREHOUSING—Negotiations have been conducted by the Ford Motor Company for lease of a large warehouse in Richmond owned by the Santa Fe Railway, where Ford plans to install their service department. Approximately 250 employees would be moved there to handle approximately \$3,000,000 worth of parts.

BOX TOPS DID THIS—Associated Activities, Inc., of Minneapolis, was scheduled to open a new plant in Burbank on October 1, their third expansion in 18 months. The firm processes premium and contest responses for national advertisers, and employs 600 workers in two Minneapolis offices. They expect to use 100 employees at Burbank.



SAFETY RECORD—This new industrial relations building (above) at General Petroleum's Torrance refinery has little-used hospital facilities because of the company's record of nearly 1,000,000 man hours without a disabling accident.

REFINERY GOES ABROAD—The Los Angeles refinery of the Pathfinder Petroleum Company, Los Angeles, has been dismantled for shipment to Italy, following purchase by Socony-Vacuum Oil Company, Inc., to replace their Naples plant that was damaged during the war.

NEW LOS ANGELES COUNTY FACTORIES—*Burbank*: Protection Products Mfg. Co., 5 W. Magnolia Blvd.; branch of Kalamazoo, Mich. firm; chemical preservatives and waterproofing compounds; H. A. Mahnke and H. A. Mahnke, Jr., in charge. *El Monte*: R.V.S. Mfg. Co., 1011 S. Seaman Ave.; aircraft parts; Ralph V. Skarda, president. *Hollywood*: Castro & Humphreys Furniture Mfg. Co., 920 N. Citrus Ave.; tables and lamps. *Huntington Park*: Lawler Steam-mobile, 7410 Long Beach Blvd.; steam engines and parts for automobiles. *South Gate*: Rosan, Inc., 5224 Southern Ave., manufacture of locking systems for aircraft industry; Jose Rosan, president. *Los Angeles*: Betham Gear Cutting Co., 1117 E. 78th St.; Gus Betham, owner. *Forsum Mfg. Co.*, 1135 E. 12th St., paint sets for children. *Globig Engr. & Mfg. Co.*, 1706 E. 83rd St., electric motors and grinders; J. W. Globig, president. *Graniel Co.*, 4246 E. Washington Blvd., fishing reels and related products; Gus Betham, owner. *Tilt-Top Ottoman Co.*, 2450 S. Main St., club chairs and ottomans; Robert Virze, owner. *Vernon area*: Alcoa Packing Co. of Los Angeles, 4512 S. Alcoa Ave., meat packing; 15,000 sq. ft.; occupancy expected about October 1. **LOS ANGELES COUNTY EXPANSIONS**—*Compton*: L & M Shape Burning Co., 3200 N. Alameda St., erecting 17,500 sq. ft. plant at 3212 N. Alameda St.; acetylene torch burning. *Los Angeles*: Chesterfield Furniture Mfg. Co., 129 Weller St., acquired building at 3929 Broadway Pl.; furniture. *Cook & Price*, 6714 McKinley Ave., moved to this location; refrigerated truck and aircraft air-conditioning units, etc. *Eagle Bakers*, 908 E. 15th St., added new loading dock. *Eddy Hat Co.*, 421½ Wall St., opened another plant at 810 Kohler St.; making men's fur felt hats and "Lite-O" cowboy hats. *Fluor Corp., Ltd.*, 2500 S. Atlantic Blvd., plans 62,000 sq. ft. engineering building; oil well equipment, cooling towers, etc. *Industrial Hydraulics, Inc.*, 3535 Union Pacific Ave., moved to new 4,000 sq. ft. building; hydraulic cylinders, custom boring, honing. *Knudsen Creamery Co.*, 1974 Santee St., building 13,000 sq. ft. garage at 1930 Santee St. and plan three-story building at 1959 Santee St.; cheese production. *Ilco Tube Bending Works*, 843 E. 31st St., has new 10,840 sq. ft. plant; plans line of chrome steel furniture frames. *Kohl, Inc.*, 815 E. 14th Pl., has 5,000 sq. ft. at new address; manufacturing handbags; W. W. Kohl, president. *Manlove & Christian Mfg. Co.*, 3524 Union Pacific Ave., added new 4,000 sq. ft. building; aircraft parts, oil well tools, etc. *Moll-Sills*, 308 E. Ninth St., has more space at new address; manufacturing womens' belts for needle trade. *Parker Appliance Co.*, 6506 Stanford Ave., plans to double manufacturing facilities by purchase of Air Associates plant at 5827 W. Century Blvd.; flared tube couplings and aircraft valves. *Pioneer Wrapper Co.*, 2041 E. 25th St., moved to new 20,000 sq. ft. building; will increase output of gift and Christmas wrappings. *Spaulding Macaroni Co., Inc.*, 247 E. 61st St., acquired 20,000 sq. ft. at 1300 Goodrich Blvd.; both plants to be operated in manufacture of egg noodles, macaroni and macaroni products. *W. H. Trimm Mfg. Co.*, 1811 Johnston St., added unit for manufacture of tool boxes, cabinets, radio chassis, steel parts, etc. *Westgeld Casuals*, 850 S. Broadway, acquired 2,500 sq. ft. at 1017 S. Grand Ave.; casual dresses. *Willis-Overland Co.*, 6201 Randolph St.; plans expansion to produce two-wheeled and four-wheeled trucks and station wagons by end of year; expansion to continue until production sufficient to supply nine western states. *El Monte*: Los Angeles Die Mold, 1332 S. Seaman Ave., plastic and diecast dies. *El Segundo*: Lion Pacific Co., formerly at 1452 N. Spring St., erecting building at 149 Sierra St.; sheet metal products, stampings; L. J. Cassou, president. *Glendale*: Metalite Mfg. Co., 924 Thompson Ave., enlarging to 30,000 sq. ft.; hospital and dairy ware, aircraft parts, stamping, spinning, etc. *Grow Mfg. Co.*, 3023 Riverside Dr., erecting 10,000 sq. ft. building, 917 Western Ave., to move about end of year; aircraft and appliance gears, electric motor applications, gear case work. *Hollydale*: Adel Precision Products Corp., Earthmaster Div., 12-24 Center St., added 4,000 sq. ft. building; agricultural implements. *Long Beach*: Pacific Valve & Pump Co., 2976 Cherry Ave., building 38,000 sq. ft. plant at 3201 Walnut Ave., Signal Hill; cast steel valves. *Long Beach Press-Telegram*, erecting 25,500 sq. ft. building at 627 Locust Ave. *Pasadena*: Dunbar Bedding Co., 26 E. Colorado Blvd., building plant at 1631 S. California St., Monrovia; furniture, mattresses, box springs, etc. *Crown City Die Casting Co.*, 84 N. Fulton St., added 5,000 sq. ft.; zinc die castings. *Torrance*: Barrington Welding & Ma-

(Continued on page 78)

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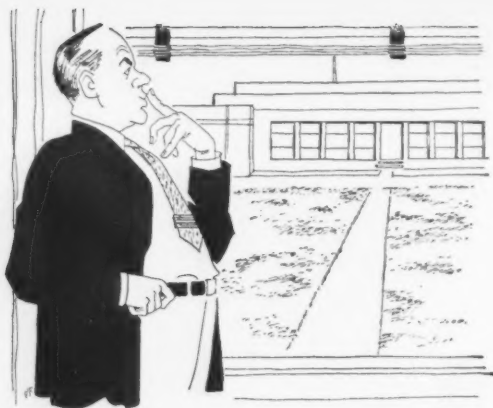
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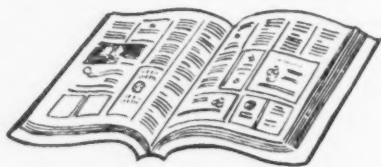
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THE WEST ON ITS WAY

(Continued from page 76)

chine Works, 1124 Border Ave., adding 3,200 sq. ft. building; welding and manufacture of special machines. *Van Nuys*: West Valley Planing Mill, 15043 Califa St., has new 4,000 sq. ft. building; planing mill products. *Whittier*: Sta-Hi Corp., 1020 Crocker St., acquired site on Washington Blvd., plans 12,000 sq. ft. plant; newspaper mat formers, allied products.

STEEL MILL EXPANDS—Facilities of California Cold Rolled Steel Corporation, Los Angeles, have been enlarged by addition of a new type rotary gang slitter to slit wide coils or sheets of carbon or alloy steel, copper, brass or aluminum. Additional annealing furnaces are under construction that will increase the firm's carbon steel annealing capacity 75 per cent.

PAINT COMPANY PURCHASED—Devoe & Reynolds Co., Inc., has announced the purchase of the Los Angeles plant of the Bishop-Conklin Paint Company. Present plans call for enlarging existing facilities, and erection of a new synthetic resin plant which was scheduled to go into production the latter part of October.

FIRST POWER PLANT TO MEXICO—First unit of 24 power plants now under construction at the recently acquired Sunnyvale factory of Westinghouse Electric Corporation, has been tested and is ready for shipment to Mexico. The unit is a 5,000 kw. generator, and is part of a complete plant comprising steam turbine, generator, condenser, controls and accessories. Mexico has bought six of the plants.

NEW BAY AREA LABORATORY—A new microwave and electronics research and development laboratory has been established at San Carlos by Varian Associates, headed by Dr. Russell H. Varian, inventor of the klystron tube.

HUGE POWER PLANT PLANNED—Moss Landing, on Monterey Bay, will be the site of a new electric generating plant to be built by the Pacific Gas & Electric Company. It will be the largest unit in the P.G.&E. system, with an installed capacity of 402,000 h.p. Included in the project are three 134,000 h.p. generators, first of which is scheduled to go into service in the spring of 1950, and the other two a year later.

FOIL PRINTING CONTRACT SIGNED—Pacific Press, Los Angeles, has signed a contract with the Reynolds Metals Company of Richmond, Va. to produce printed foils. Two 6-color rotogravure presses are being



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installed, as well as special die-cutting machinery. Reynolds has acquired property in Vernon to house foil laminating equipment. The contract marks the first time Reynolds has employed an outside printing firm, having operated their own printing plants heretofore.

DRIED FRUIT FIRM SOLD—Ownership of Roseberg Brothers & Company returned to the West Coast recently with conclusion of a deal between Blair Holdings Corporation and Nathan Cummings, Chicago, who bought the company less than a year ago. The reported purchase price was \$21,000,000.

HAWAIIAN HOLDING SOLD—Last of the property owned in Hawaii by the A. B. and J. D. Spreckels sugar interests have been purchased for approximately \$3,000,000 by the C. Brewer & Co., Ltd., of Honolulu. The sale covered five plantations, from which sugar will be marketed through the California & Hawaiian Sugar Refining Corporation.

NEW PACKING PLANT—Dawson-Miller Co., Inc., is the name of a new fancy citrus fruit preserving company established at Ontario by Edward S. Miller.

SERVICE ENLARGED—New headquarters, including five main offices, 13 garages and two storage rooms, have been occupied by Goodhue Ambulance Service, Los Angeles. Cost of the new structure on South Hoover Street was \$75,000.

LUMBER FIRM SOLD—Grimm Lumber Company, San Bernardino, has been purchased by the Forest Lumber Company headed by R. B. White of Kansas City, according to LeRoy D. Owen Company, who handled the transaction. Extensive improvements in the property are planned, with a total investment of more than \$100,000. Four other Southern California yards are owned by the Forest Lumber Co., at Santa Ana, Lancaster, Palmdale and Santa Paula.

THREE NEW LINERS PLANNED—American President Lines has announced plans for three new super-liners for world passenger trade. They will be 536 feet long, and will carry 228 passengers in addition to 522,000 cu. ft. of cargo space. Cost of the trio estimated at \$33,000,000.

GOLD MILLING RESUMED—Central Eureka Mining Co. was scheduled to reopen gold milling operations at the mine near Sutter Creek, Amador County, in September, after a long program of rehabilitation costing about \$1,000,000.

RESORT AREA PROTECTED—A total of 66 square miles of desert country around Palm Springs was recently zoned by the Riverside County Board of Supervisors in an effort to prevent construction of a cement plant about 4½ miles from the resort town. The ordinance prohibits establishment of any heavy industry within the area. S. A. Guiberson Jr., who was planning the cement works, has been reported as continuing with the preliminary plans for his project pending a court decision.

ANNUAL CMA MEETING—In keeping with the California Centennial theme, the annual meeting of the California Manufacturers Association at the Fairmont Hotel, San Francisco, on October 7, will be built around the slogan, "Look Forward—to California's next 100 years of progress."

OIL LANDS LEASED—Several thousand acres of the Santa Ynez Valley, north of Santa Barbara, have been leased by a number of oil companies who are exploring the area for new oil fields. Barnsdall Oil Company has taken a lease on approximately 1,000 acres, while others have been taken by Shell, Union and Tide Water Associated.

SPECIAL TRAILER FOR MOVING JOB—Seven 96-ton transformers were moved by the Bureau of Water & Power, Los Angeles, recently, by means of a new trailer built to department specifications at a cost of \$30,000. The vehicle has a 110-ton capacity, and moved the 23-foot high transformers over a 12-mile route without incident.

NEW GAS LINE AUTHORIZED—Construction of a 73-mile pipe line from Desert Center into the Imperial Valley at a cost of \$1,150,000, has been authorized by the Federal Power Commission. Southern California Gas Company is to build the line, drawing gas from the 1200-mile pipe line between Los Angeles and the Texas Panhandle.

BAY AREA FIRM WINS CONTRACTS—Pacific Coast Engineering Company, Alameda, has recently been awarded five new contracts aggregating \$1,200,000. The company, which has increased its production 600 per cent since 1945, according to President C. Harold Ramsden, will build 18 tainter gate hoists for the Brazos River dam, Whitney, Texas; a 73½-foot diesel powered steel tug for the California Board of Harbor Commissioners; a sea-going oil barge of 26,000 bbl. capacity for United Towing Company, a 218-foot bulk oil barge for River Lines, Inc., and high pressure steel discharge pipes for the Tracy pumping plant on the Delta-Mendota canal, a project being built by Stolte-United, Duncanson-Harrelson, and Ralph A. Bell.

COLORADO

BEVERAGE FIRM MOVES WEST—Executive offices of the Nestle Company, Inc., manufacturers and distributors of soluble coffee, tea and milk products, will be moved from New York to Colorado Springs within the next year. A 16-acre site has been obtained in East Colorado (Continued on page 80)

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THE WEST ON ITS WAY

(Continued from page 79)

Springs, where a 60,000 sq. ft. building will be erected. About 200 key personnel and their families will be moved west, with another 200 to be recruited from the local area. Cost of construction will be approximately \$1,000,000.

CHEMICAL PLANT GROWING—Ready market for "xylose," used in production of nylon, has resulted in plans for a full-scale production program at the plant of St. Vrain Industries, Longmont. The chemical is manufactured from corn cobs by a process developed after seven years of research by three Longmont men, F. H. Riebling, R. John Townley and J. W. Hahn. Xylose is selling at \$5.00 per pound, currently.

CEMENT PLANT IN PRODUCTION—The huge \$6,000,000 cement plant of Ideal Cement Company, newest and second largest in the country, is in its second month of full production. Turning out 24,000 bags of cement daily, the plant is situated on the banks of the Arkansas River at Portland, about 26 miles west of Pueblo.

SOAP FACTORY DESTROYED—A fire reported to have been caused by an overheated boiler, damaged the plant of the Lee Soap Co., Denver, to the extent of \$40,000. A fire in the same building not long ago did an estimated \$35,000 damage. The plant was working on a large government order, which was almost completely destroyed.

NEW SMELTING PROCESS—A. J. Koebel, 68 year old prospector, has been busy demonstrating his revolutionary smelting process to Northwest mining men. Ore concentrates are blown into a furnace carrying 2,400-degree temperature, causing the concentrates to "explode" and combine with oxygen, becoming oxides. Waste flows out the bottom of the unit in a molten state, while the oxides are blown through pipes into a bagging plant.

FLOTATION MILL—Bradley Mining Company is nearing completion of building a 150-ton flotation concentrating mill at the Imatungsten mine, Patterson. Western-Knapp Construction Co., San Francisco, is doing the job, which is on three floor levels with a gravity feed system.

DRILLING RESUMED—The Oklahoma Oil Co., Denver, has signed a contract with the Great Western Drilling Co., Rangely, for completion of the Goff No. 1 well in Moffat County. Leases on the property were

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WESTERN INDUSTRY—October, 1948

recently taken over from the Empire Corp., after drilling halted about 60 days ago when water was encountered. Showings of oil and gas have already been found.

MONTANA

OIL FIRM MOVES—State headquarters of the Texas Oil Company have been moved from Shelby to Lewistown.

TIMBER SALE—A total of 123,000 board feet of timber were scheduled for sale on September 16 by the National Forest Service at Flathead national forest near Hungry Horse lake. The offering included larch, fir, spruce and white pine.

PHOSPHATE PRODUCTION—Montana was third among Western states in production of phosphate rock in 1947, according to the U. S. Bureau of Mines. The West turned out a total of 1,249,819 tons, of which Montana produced 263,229 tons, worth \$1,549,317.

FREIGHT TERMINAL PLANNED—A \$250,000 freight terminal is to be built at Great Falls by Consolidated Freightways, with completion expected by early 1949. Additional personnel will be needed when the structure is finished, according to Frank O'Boyle, Great Falls manager. The building will be 210 feet by 130 feet, housing offices, fireproof storage and covered facilities for loading and unloading.

NEVADA

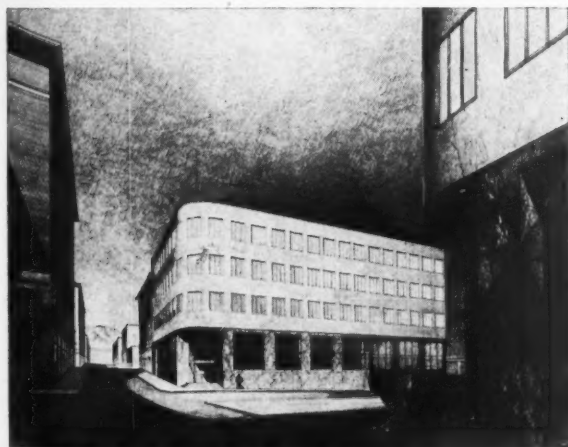
TUNGSTEN DEPOSIT FOUND—What appears to be an extensive deposit of commercial scheelite, the source of tungsten, has been located near Luning by W. D. Edds and C. H. Ide. The ore body is about 50 feet wide.

OIL PROGRESS REPORTED—Drilling is continuing on schedule at the deep test well southwest of Battle Mountain on property of the Clara Oil Corporation, a syndicate of California oil men. Plans call for drilling to a depth of 5,000 feet.

RICH ORE BODY LOCATED—Drill cores from an area approximately 1,000 feet below former production indicate the presence of extremely rich deposits in the workings of the Richmond Eureka mine, operated by the Eureka Corp., Ltd., of Canada. In the early days the Eureka area was the world's leading producer of silver-lead.

OREGON

FLOODED TOWN SOLD—Remains of the flood-wrecked town of Vanport were sold recently to the Zidell Machinery Company, Portland, for \$178,591, with an agreement that all debris would be removed within six months. The war housing community originally cost around \$26,000,000.



• Proposed Portland office of Federal Reserve Bank.

FOREST CONSERVATION CENTER—Roseburg is the headquarters of the Siskiyou-Cascade forest research center, headed by E. S. Kotok, former Ochoco forester. The center is a branch of the Northwest experiment station, and is the fifth of its kind, intended for study of all phases of forest conservation.

NEW BEVERAGE PLANT—Dad's Root Beer Bottling Company is the name of a new beverage plant opened at 3100 N.W. Front Street, Portland, by a firm headed by Eugene McDonough, St. Paul, Minn. The

(Continued on page 82)

NEW WORK-SAVER *Turns Pipe* FOR HAND TOOLS

RIGID Model "400" Portable Power
Drive operates hand threaders, cutters, reamers

● Pick up the **RIGID** Portable Power Drive and you have a pleasant surprise—it's much lighter than you expect. Modern design lightweight alloy case is tops for strength and durability. Universal motor—forward, reverse, light socket power, turns pipe for your hand tools—saves your time and muscle. **RIGID** lathe-type three jaw chuck in front with chuck wrench ejector; self-centering workholder in rear turns with pipe. Sealed-in lubrication—no oil to spill. See the **RIGID** "400" at your Supply House.



Model "400"



Model "400" furnished with tool tray, feet and all fittings (but without legs.)

Model "400" operates with **RIGID** Universal Drive Shaft for threading up to 8" pipe.

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WORK-SAVER PIPE TOOLS

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OPERATING outdoors in all kinds of weather, protected only by a piece of sheet iron, this Speedaire drives a reciprocating feeder that empties slate from the storage bin above it into dump cars.

Three compelling reasons led the Coal Company to install Speedaire instead of a conventional worm gear reducer: Speedaire weighed 30% less—it required 26% less headroom—it saved \$50.50.

Speedaire is Cleveland's new fan-cooled worm-gear speed reducer. Because it is fan-cooled, Speedaire will do more work—will deliver up to double the horsepower of standard worm units of equal frame size, at usual motor speeds. It can be installed economically on many applications where other types have been used heretofore—giving you the advantages of a compact right-angle drive. Speedaire gives the same long, trouble-free service characteristic of all Clevelands.

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CLEVELAND
Worm Gear
Speed Reducers

THE WEST ON ITS WAY

(Continued from page 81)

company features a "papa," "mama" and "junior" size of bottles, which are half-gallon, quart and nickel containers.

TROOP SHIP CONVERSION—Willamette Iron & Steel Company, Portland, holds a \$400,000 contract from the United States Lines, coupled with a \$500,000 contract from the Maritime Commission, for conversion of the former Navy transport Comet into a general cargo vessel. Scheduled for completion within 90 days, the job is employing between 300 and 400 men.

EXPERIMENTAL FOREST—A tract of 15,000 acres in Lane County has been set aside by the Forest Service for experimental purposes. Robert Auderheide will head the project, which calls for cutting about 20,000,000 feet of old-growth Douglas fir annually from stands estimated at one billion feet.

PACKAGING PLANT PLANNED—Standard Oil Company of California has announced plans to erect a \$150,000 packaging plant at Portland in conjunction with their California Asphalt Corporation plant. Location was reported as San Francisco in the July issue of Western Industry.

NEWSPAPER BUYS PLANT—Difficulties in obtaining construction of a new building in Pasco has resulted in purchase of the plant of the Kennewick Canning Company by the publishers of the Tri-City Herald. The former factory will be converted into a newspaper plant, according to G. C. Lee and R. F. Philip, owners.

FOOD WAREHOUSE—Standard Brands, Inc., has awarded a contract to Donald M. Drake Co. for construction of a \$75,000 warehouse in Portland, to take care of distribution of its products in Oregon, Washington and part of Idaho. W. B. Perkins of Portland is manager.

NEW SAW MILL STARTED—Production was scheduled by late September by a new saw mill at Independence by a group of lumbermen headed by Marvin Pippin. The plant has a capacity of 25,000 feet per shift and employs about 30 men.

BUILDING PLANS RESUMED—Construction of a Pacific Northwest warehouse for Montgomery Ward & Company at Portland was expected to begin at an early date, following renewal of plans by the company

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to go ahead with awarding a contract. Estimated to cost about \$1,500,000, previous action on the building was dropped earlier this year because of high costs.

LUMBER FIRM SOLD—Kenneth and Grant Lovegren of Cottage Grove are purchasers of the Walters-Bushong Lumber Company, Eugene. In operation for nearly 60 years, the firm will continue to be known by its present name.

MANAGEMENT CONFERENCE SET—Members of the Pacific Northwest Personnel Management Association are scheduled to meet at Portland, November 4, 5 and 6. Speakers at the convention will include Richard E. Hambrook, vice president in charge of personnel, Pacific Telephone & Telegraph Co., San Francisco; L. R. Boulware, vice president in charge of employee relations, General Electric Company, New York; Keen Johnson, vice president, Reynolds Metals Co., Louisville, and William M. Passano, president, Waverly Press, Baltimore.

FURNITURE FACTORY—Rockers, reclining chairs and sectional sets will be manufactured by Float-in-Ez Northwest, Inc., Portland branch of a Los Angeles furniture firm which opened recently.

INDUSTRIAL SERVICE STATION—Diamond Tractor & Equipment Co. have spent \$16,000 on two all-steel buildings on N.E. Columbia Boulevard, Portland, for sales and service of industrial and agricultural equipment.

UTAH

NEW FURNITURE FACTORY—Among the new industries growing up in the Salt Lake City area is the plant of United Furniture Industries, Inc., situated in two large warehouses on the former U. S. air base at Kearns. Al Mackin heads the new firm, with Gordon Feil as vice president. Plans call for production of about \$40,000 worth of furniture per month, employing 35 to 50 workers. Distribution will be confined to a 500-mile radius around Salt Lake City.

OIL & GAS COMPANY FORMED—Articles of incorporation have been filed at Brigham City for the Box Elder Gas & Oil Development Company, with authorized capital stock of \$1,000,000. Elne Cristion, of Tremonton, is named as president, director and treasurer.

HUGE POWER PROGRAM—Plans of the Utah Power & Light Company during the next six years call for expenditure of approximately \$61,000,000 in the area which the company serves.

(Continued on page 84)

BEARINGS • *Seals*

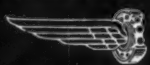
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Ball bearings for precision instruments
NICE BALL BEARING CO.
Inch dimension precision and semi-precision bearings
RANDALL GRAPHITE PRODUCTS CORP.
Graphite bronze self-aligning pillow blocks
ROLLER BEARING CO. OF AMERICA
RBC, Cyclops and 20th Century needle and roller bearings
SHAFFER BEARING CORP.
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WALDES-KOHINOOR, INC.
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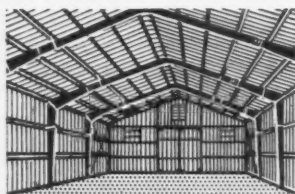
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- ★ Die-Formed Eaves. One-Piece Roof Ridge (No Ridge Roll.)
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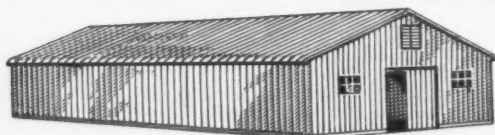
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Standard Length 48'. Variable in Multiples of 12'. Straight Sidewalls 10' high.



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THE WEST ON ITS WAY

(Continued from page 83)

HARBOR PROPOSED—A proposal is under discussion among Utah business leaders for construction of a small-boat harbor on Great Salt Lake near Garfield, to cost an estimated \$370,000 for facilities to handle 600 boats.

LEADS IN GYPSUM PRODUCTION—Utah was among the nation's leading states in the production of gypsum, according to 1947 figures released by the U. S. Bureau of Mines. Nevada led the country, with 526,972 tons mined, followed by Utah and Oklahoma, with 326,144 tons valued at \$912,764. National production was about 6,000,000 tons, of which 43 per cent went into prefabricated products and 29 per cent into building plasters.

LARGEST SERVICE STATION—Bountiful is the site of what is reported to be the second largest automotive service station in the United States. Occupying 11 acres, the plant has 10 "islands" with 32 pumps, and storage facilities for 150,000 gallons of gasoline, diesel, oil, motor oils and fuel oil.

U. S. TO OPERATE URANIUM PLANT—The Atomic Energy Commission has taken over operation of the Vanadium-Uranium mill of the U. S. Vanadium Corp. at Uravan. The plant will soon be open to corinite ores. The Monticello plant of the commission is already receiving ore, and the commission has instructed the American Smelting and Refining Company to open an ore-purchasing program at a plant in Durango, Colorado.

WASHINGTON

NEW FREIGHT DOCK—Construction is well started on the new Seattle home for West Coast Fast Freight, including offices, freight dock and maintenance shops. According to Frank Baxter, district manager, work should be completed in another 60 days. The freight dock, occupying 30,000 square feet, will accommodate 60 trucks. The entire project, including three buildings, is situated on a 5-acre tract at Eighth and Hanford streets.

ENLARGEMENT UNDER WAY—Tacoma Plywood Corporation is installing new machinery that will increase its capacity of 24,000,000

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Ready-Power gas-electric Power Units are unequalled for completely dependable power, hour after hour, day after day. A Ready-Power Unit will be installed by an electric truck manufacturer on any new truck you order . . . but you don't have to wait for that because you can convert any electric truck you now have.

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square feet. During a reorganization of the company, George F. Baum, Seattle, was named president; A. J. Johnson, vice president, and R. D. Torbenson, secretary-treasurer.

FERRO-ALLOYS PLANT SOLD—Facilities of the Rock Island ferro-silicon plant at Wenatchee, known during the war as Wenatchee Alloys, Inc., have been sold to the Keokuk Electro-Metals Company, Keokuk, Iowa, for \$382,000.

NEW PHONE FACILITIES—Construction has begun on the laying of a coaxial cable to connect Seattle and Yakima, according to the announcement of the Pacific Telephone & Telegraph Company. The project, expected to take three years, will cost \$910,000, and will be capable of carrying 600 messages simultaneously.

PAPER INDUSTRY FOR ALASKA—The Forest Service has accepted the bid of Ketchikan Pulp & Timber Company (an affiliate of Puget Sound Pulp & Timber Co.) to establish a paper industry in Alaska. The agreement includes purchase of 17.5 billion cubic feet of pulp timber near Ketchikan. Establishment of facilities at Ward's Cove north of Ketchikan will cost an estimated \$30,000,000.

SMELTER TO MAKE ACID—E. R. Marble, Tacoma manager of American Smelting and Refining Co., has announced the erection in that city of a 100-ton rated capacity sulphuric acid plant. Work will start immediately in removing ore bunkers at the south end of the Tacoma Smelter, permitting a 125 by 500-foot space to be used for the new operation. The plant is expected to take 18 months to build and will probably be open early in 1950.

FUEL OIL STORAGE—Present facilities for storage of heating oils in the Northwest will be greatly enlarged with construction of tanks with 600,000 barrel capacity at Point Wells by the Standard Oil Company of California. S. E. Stretton, Seattle district manager for Standard, said the new acreage will double existing facilities at Point Wells. Work is expected to start about December 1 and be complete by March, 1949.

CONDEMNATION ASKED—Negotiations for purchase of properties of Puget Sound Power & Light Company in Snohomish county have been terminated, and the commissioners have authorized condemnation proceedings. They set \$8,000,000 as top price, while the company was reported to be asking \$18,000,000.

ALLOY PLANT WORKING—Chromium Mining & Smelting Corporation has begun production of alloys for national distribution to steel and iron mills at the plant the firm leased from the War Assets Administration, near Spokane. Ferro-chrome-silicon is being made for shipment to steel mills on the company's own plant at Riverside, Ill.

STEEL PLANT IN PRODUCTION—Rainier Steel Corporation's ingot plant, Tacoma, was scheduled to be in production on September 15, turning out ingots for the Ford Motor Company. The plant represents an investment of about \$250,000 and employs 50 men.

PIPE MYSTERY SOLVED—Curiosity as to the intended use for huge sections of concrete pipe being manufactured in Pasco have been resolved with announcement that they are part of the new construction going on at the Hanford Engineering Works. Guy F. Atkinson and J. A. Jones are contractors on the job. The pipe, in six-foot sections, is 6 feet in diameter. One thousand pieces are being made.

WYOMING

UNITED AIR SHIFTS MEN—Centralization of maintenance operations of United Air Lines in their new base at San Francisco has resulted in the transfer to that city of approximately 500 employees and a quarter of a million dollars in equipment formerly based at Cheyenne. Present leases on Cheyenne facilities run until 1951.

DEEP WELL SCHEDULED—With oil exploration going on in each of Wyoming's 23 counties, one of the deepest wells projected has been disclosed by the Shell Oil Company. Plans call for a 10,000 foot test well in northern Sheridan county.

FREIGHT FIRM OPENS—Cheyenne offices of the National Carloading Corporation, one of the nation's largest freight forwarders, have been established in the headquarters of the Cheyenne Transfer & Storage Company pending selection of permanent facilities. F. R. Landrum is in charge of the office.

OIL LABORATORY OPENED—The U. S. Bureau of Mines has opened its \$550,000 laboratory at Laramie to public inspection, after more than a year's delay following completion so that experimental equipment valued at \$350,000 might be in full operation.

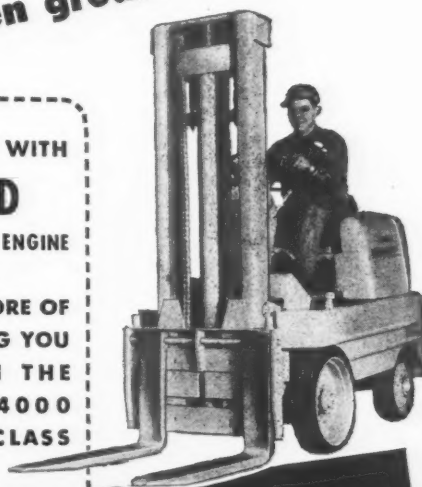
NEW TANK FACTORY—Keyes Tank and Supply Company, of Casper, has completed arrangement for facilities in Provo, Utah, for the manufacture of field tanks, pipe lines, refinery and storage tanks. Operations are contemplated about January 1.

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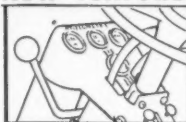
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An exclusive Mo-Tow-Lift advantage. Gives accurate control of every operation.



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WESTERN

TRADE WINDS

NEWS ABOUT THOSE WHO DISTRIBUTE AND
SELL INDUSTRIAL EQUIPMENT AND MATERIALS

Howard Stevens has joined Saval, Inc., Los Angeles, as head of industrial sales and promotion. The firm manufactures high and low pressure directional control valves for water, oil and air.



Hugh A. Dewar named district sales manager of the pole line hardware sales division, Los Angeles, for Oliver Iron & Steel Corp.

A. W. Nash, 5225 Wilshire Blvd., Los Angeles, appointed Southern California representative of the Ajax Flexible Coupling Co., Inc., of Westfield, N. Y.

Robert W. Hubner is the new manager of all sales and services in the Seattle area for International Business Machines Corp. He was previously electric accounting machines mgr.

William H. Noble named assistant district sales manager, San Francisco district, for the Republic Steel Corporation.

Walter H. Ketell is appointed sales manager in Albuquerque for the Trailmobile Co., suc-

ceeding J. D. Rickman, who received a new assignment.

W. E. Collins, Jr., formerly Seattle district sales manager for Atlas Powder Company, has been promoted to director of sales for the entire firm, with headquarters in Wilmington, Del. George W. Thompson has been transferred from New York to fill the Seattle post.

Fred A. Amburgey succeeds George R. Kendrick as acting manager of the Northern California sales and wholesale offices of Pope & Talbot, Inc., with headquarters in San Francisco.



E. B. Parsons, for 30 years San Francisco representative for C. M. Kemp Mfg. Co., Baltimore, retired recently. E. A. Wilcox Co., San Francisco and Seattle, have taken over the line.

R. E. Yates announced as taking charge of all general machinery division dealer accounts in the Portland area office of Allis-Chalmers.

Mailler Searles, Inc., 300 Seventh St., San Francisco, appointed Northern California representatives for Salsbury Turret Trucks, a line of platform lift, tractor, bulk cargo and pallet handling equipment.



William R. Bajari appointed regional sales supervisor in the Western Region of the United States by the Eutectic Welding Alloys Corporation, New York.

F. N. Wardell is the new Pacific Northwest representative of Essex Wire Corp., with headquarters in Portland.

Republic Supply Company of California have been appointed statewide distributors of the complete line of Goodyear mechanical rubber products. Republic has been the Goodyear jobber in the San Francisco Bay area for the past eight years.

Darwin H. Clark Co., advertising agency, have moved into their own new building at 1139 West 6th St., Los Angeles. Founded in 1935, the firm handles industrial, consumer, financial and association accounts.

William C. Zink named Seattle district manager for the B. F. Goodrich Company. He has been assistant manager of the auto, aviation and government-sales division in Los Angeles.

Maas The Only Manufacturer

of Phosphates and Phosphoric Acid in the Entire West

BRINGS YOU

Maas DRI-TRI

(Anhydrous Trisodium Phosphate)

A saving to you by replacing regular T.S.P. Because 3 pounds of DRI-TRI are equal to 7 pounds of T.S.P. Giving you 56% savings on packaging, trucking, freight, storage space costs! DRI-TRI has many advantages over T.S.P. Write for full information.

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Samples of Steel, Wire and Tubular products can now be brought to your door for your selection in Drake Steel's new mobile display. A Drake expert accompanies the display to assist you in filling your steel needs, take your order—and in many cases your purchases are delivered in 24 hours! Try this new time-saving, one-stop steel service.

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NEW METHODS, MATERIALS, EQUIPMENT

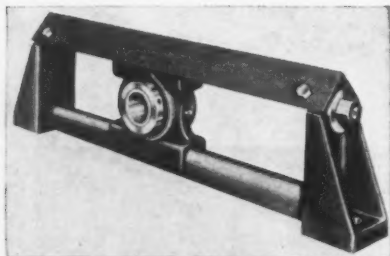
814



New Cable Connector Requires No Tools

A new non-metallic sheathed cable connector for electrical outlet boxes has been developed by Allied Electrical Manufacturing Corp., Chicago. Guaranteed by the makers to save electrical contractors time and money, the connector is described as absolutely foolproof and requires no special tools for installation. Called the Paige No. 52, the unit is made of high-grade spring steel, plated against corrosion. It is installed by pressing firmly with the thumb or tapping lightly from the inside of the knock-out until the connector snaps into position against the outlet box.

815



Two New Screw Take-ups Developed by Dodge

Dodge Manufacturing Corporation, Mishakawa, Ind., has announced production of two new types of protected screw take-ups suitable for elevator or conveyor use. The Type E was designed to meet

demand for a roller bearing equipped take-up at moderate cost. It has a welded steel frame, and the bearing used is the inner unit of the Dodge-Timken Type E Roller Bearing Pillow Block. Positive adjustment of the take-up is effected by turning screw heads at either end. Dodge's new Type H take-up is furnished with babbitted bearings, faced on ends and equipped with standard pressure fittings. Load on bearings may be applied in either direction.

816

Suspended Heater Saves Floor Space

In offices or factories where heat control is important, the Desert Air line of gas-fired suspended unit heaters offers an unusually economical means of keeping the temperature even without sacrifice of valuable floor space. These units are hung from the ceiling, and while their rugged construction assures steady operation under any kind of industrial condition, their quiet action makes them suitable for use in offices where noise must be kept at a minimum. The Desert Air units are thermostat-controlled, with a 16-in. G.E. fan to circulate warm air and a safety limit control which shuts off the gas should the fan fail or temperature become excessive for any reason. Manufactured by the Central States Manufacturing Co., Inc., Arkansas City, Kans., also producers of industrial burners, floor furnaces and evaporative cooling equipment.

817

Colloidal Silica Now In Production by DuPont

A new product used by the textile, rubber and wax industries, named "Ludox," has been produced recently by The DuPont Company in full-scale commercial quantities. It is a colloidal silica, a water solution of "sand" manufactured with a unit developed by the Grasselli Chemicals Department at the East Chicago Ind. works. Introduced a year ago, the product was available only in 18 per cent silica concentrations. The new process furnishes a concentration of 30 per cent, making for lower shipping costs and easier storage. "Ludox" is effective in weave-setting treatments of rayon fabrics, and, incorporate in aqueous wax dispersions, the product is reported to increase the skid-resistance of waxed floor surfaces. It is also being used for strengthening elastic thread, and in increasing the bond of various adhesives.

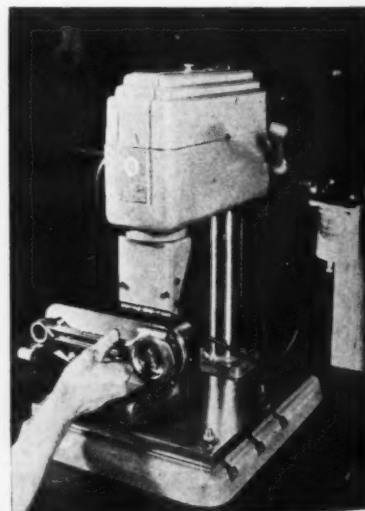
818



Light Weight Spray Gun Has Greater Capacity

Adaptable to any type of spray finishing machine, a new AGA gun has been developed by The DeVilbiss Company, Toledo, Ohio. Only seven inches long and weighing 2 3/4 pounds, the gun has an action that opens, sprays and closes 5,400 times per hour. The AGA has comparatively few parts, and can be supplied with mounting adapters to permit tipping and turning to any position. A wide range of air caps and fluid tips adapt the gun to the most delicate or the heaviest types of product finishing.

819



Automatic Marking Machine For Metals, Wood or Plastic

A new automatic marking machine, operated pneumatically by standard air pressures, has been announced by the Cadillac Stamp Company, 2138 Riopelle

St., Detroit 7, Mich. Called the "Auto-mark," it is designed for fast, low-cost marking of light and medium heavy parts of steel, iron, brass, aluminum, bakelite, plastics, leather or wood. The unit may also be adapted to burning brand applications, and gold and color-leaf marking on a production basis.

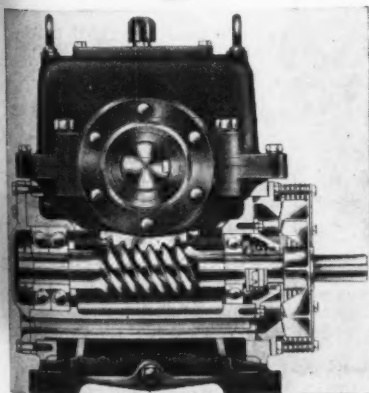
820



Two Diamond Penetrators For Rockwell Testing

Two improved diamond penetrators for "Rockwell" testing have been announced by Clark Instrument, Inc., Dearborn, Mich. The "C" penetrator fits all makes of hardness testers for standard "Rockwell" testing, and the "S" penetrator fits all machines for superficial "Rockwell" testing. Diamond points are especially selected for proper stratification and freedom from internal stresses, and the penetrators are accurately made to proper size and shape, exactly formed by expert lappers.

821



Enclosed Worm Gear Drive Is Smaller and Lighter

Foot Bros. Gear and Machine Corp. has introduced a new line of enclosed

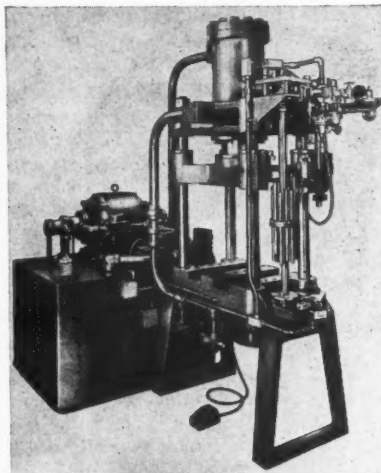
worm gear drives in both horizontal and vertical types. These Hypower units are smaller than conventional drives of equal capacity, and lighter, due to refinement in design. Features of the new drives are increased thermal capacity due to the immersion in the oil reservoir of an air channel cylinder through which passes a high velocity stream of cool air, and a special carbon lapped ring type seal to prevent oil leakage.

822

All-Welded Wheel Designed for Hand-Trucks

A new all-welded wheel ideal for hand-trucks of many types as well as other materials handling equipment, is a recent product of the Adams Mfg. & Supply Co., Los Angeles. The wheels are available for general distribution, and have been adopted as standard on all Adams welding cylinder and materials handling trucks.

823



Tube-Bending Press Has Variety of Sequences

A new hydraulic tube-bending press having an unusually large number of bending combinations has been announced by the Elmes Engineering Works. Unlike

previous 12-position presses that actually could be set up for only six different bending sequences, this new Elmes press allows any number of sequences up to the maximum of 12, with adjustable bending depth and automatic reset. This feature, together with a choice of four bending radii, gives users a selection of any or all of 48 possible bending variations for forming exhaust pipes, frames, furniture tubing and similar products on a mass production basis. Press capacity is 20 tons.

824

Truck Combines Platform And Crane in One Unit

A new power industrial truck combining a low-lift platform and a crane is the most recent development of Elwell-Parker Electric Co., Cleveland, Ohio. This combination is effective for many load-handling operations in manufacturing, warehousing and shipping. The crane can pick up a load from floor level and lift it to a height of 8 feet, with a radius of 45 degrees on either side of base. Mechanism provides means for reaching, high-stacking or taking down materials in such form that they may be handled with rope or cable slings. The truck's platform can lift and transport loads weighing up to three to five tons, depending on size and model. Loads may be piled directly on the truck platform or on skids under which the platform can maneuver after loading.

825

Universal Type Wrench Fits All Drum Closures

Designed to eliminate the need for a variety of special tools, a new universal type wrench, No. 5001, has been introduced by the Aero Tool Company, 6390 Avalon Blvd., Los Angeles 3. The tool has sockets and lugs so placed as to fit all standard steel drum closures, and has a steel lip for removing steel caps over drum closures.

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The Comptroller: His Functions & Organization

By J. Hugh Jackson, Harvard University Press, Cambridge, 1948. \$2.00.

In recognition of his high standing in the field of accounting, Mr. Jackson was appointed Dickinson lecturer at the Harvard Graduate School of Business Administration for the year 1946-47. Based upon these lectures he recently published the book which is the subject of this review.

"The Comptroller" is an account of how the corporate office of comptrollership came into being, its place in a business organization, what its principal functions are and some of the personal qualifications desired in a man to occupy such a position.

As a basis for these lectures the author selected 195 representative companies from various industrial groups. Out of this number 143 had established the office of comptroller and 52 had not done so. In the former group the average time in which the office has been in existence is approximately 22 years, showing that the comptroller is a comparatively recent addition to the corporate family.

Growth in importance of the accounting function as an aid to management has been the basic cause of this development in corporate organization. As industrial operations grew in size and complexity and as government regulation of business became more far reaching the problem of control from management's point of view grew to staggering proportions. In meeting this challenge the comptroller's office was created and placed in charge of the accounting functions. It is the practice of a great many organizations to give the comptroller a place with the top administrative group where he becomes the chief adviser of the general manager or president.

In the concluding and most outstanding chapter Mr. Jackson sets forth personal qualifications of a comptroller. These are important because a good deal of a comptroller's success will be related to such factors. First of all there is a necessity for a thorough foundation in accounting principles. Next he must be familiar with the problems of the industry and of the company which he serves. In addition, the comptroller "must be objective in all of his work, he must be tactful and cooperative to the highest possible degree, he must possess good judgment and must have the quality of being firm, and at the same time of not being overbearing." The author concludes by emphasizing what is most important in the opinion of the reviewer, that the comptroller should recognize his responsibility for service. This responsibility should not be limited to the immediate

company which he serves but should be extended to the community as a whole.

This book will be of interest to comptrollers and chief accountants because it will help them achieve a greater perspective in their work. "The Comptroller" also will be appreciated by those who have a general interest in matters of business practice and procedure.

Reviewed by:

WESLEY T. BENSON
Accounting & Business Statistics

Research in Industry

By C. C. Furnas (Editor), D. Van Nostrand Co., Inc., N. Y., 1948, \$6.50

A handbook type, this new book is written through the efforts of 33 leaders in the industrial research field. Each contributes a chapter in which he discusses a specific phase of what the editors consider to be a research program.

As is usual in this kind of book, some of the chapters are good, some are not so good. The good ones are largely in the technical fields where the writers obviously are right at home; and adequate treatment is given to the budgetary accounting aspects of the program. There are, however, other subjects commonly considered equally as important in the research enterprise which are given only passing treatment by the editors. For example, the discussion devoted to research reports is almost too general to be of interest. Types of reports are given some attention, but style and form are sadly neglected. Since this is a very important yet commonly weak part of many research programs, one might attach significance to the superficial handling of it here and be tempted to conclude that this blind spot still is not seen even by the top research leaders. Too, too bad.

Humor of a sort and from an unexpected source is furnished in the statement that "Some qualities considered essential in research personnel which might distinguish them from salesmen, administrators, production supervision and others in industrial activity are: attitude toward work, possession of certain character traits, including honesty, generosity, self-discipline, and tolerance; persistence in the face of difficulty." This smacks of smugness that is neither realistic nor commendable. It just sounds silly.

Very little attention is given to the importance of letting the research man see the overall company manufacturing problems in order that his continuing contributions to their improvement may be credited to the human relations side of the ledger. It is conceded that some oblique and uncoordinated thrusts are made in this gen-

eral direction, but certainly a direct attack would be much more constructive.

All in all, the authors seem to be more intent on encompassing the subject matter than in penetrating it. So the book should be considered an indicator of most of the things that require doing rather than a dynamic contributor to the presentation of effective techniques that get things done.

Reviewed by: C. L. THORPE
Manufacturing & Production Management

Briefer Guides From The Management Library

Wage Payment Systems

National Industrial Conference Board, Studies in Personnel Policy, No. 91, June 1948 (pamphlet)

A report describing various types of wage payment plans in use in American industry today. Particular attention is given to wage incentive systems, with a summary of practices and experiences of organizations using such systems. Also listed are wage incentive provisions contained in collective bargaining contracts.

Company Annual Reports

By K. C. Pratt, The Champion Paper & Fibre Co., Hamilton, Ohio, 1948 (pamphlet)

This study is based on a thorough analysis of hundreds of company reports issued to both stockholders and employees during the past two years. It covers the historical background of corporate reporting, outlines the purposes behind it, and discusses various types of reports. Many illustrations are included.

Accounting for Plant and Equipment

Policyholders Service Bureau, Metropolitan Life Insurance Co., N. Y. (pamphlet)

Fixed assets constitute from 25 to 50 per cent of net worth in many manufacturing companies. Because of the importance of fixed asset investment, many concerns have set up subsidiary records for more effective control, and to facilitate compliance with government requirements regarding depreciation deductions from taxable income. This report on such control methods is based on a survey of practices of a number of companies representing a wide range of industries.

San Francisco and the Bay Area

San Francisco Chamber of Commerce, 1948 (pamphlet)

An economic survey and annual review prepared by the research department of the San Francisco Chamber of Commerce.

Basic Data of the American Economy

By Peach & Krause, Richard D. Irwin, Inc., Chicago, 1948 (book)

A comprehensive collection of charts and tables giving current facts and trends on national income, consumer spending, natural resources, business cycles, populations, exports, and other subjects.

Reviewed by:
BERNA M. CARLSON
Management Librarian

HELPFUL LITERATURE

For the plant operator who wants to keep informed

2438

Anti-Sweat Compound—Sweating of pipes and other surfaces caused by their being cooler than the air in the room is a problem common to many industrial plants. Not only is the presence of dripping surfaces a menace to health and sanitation, but the moisture speeds corrosion and rust. Correction of this situation is the subject of a booklet dealing with their Anti-Sweat Insulating Compound issued by *The Paraffine Companies, Inc., San Francisco*.

2439

Stainless Steel Analyses Chart—*Globe Steel Tubes Co., Milwaukee, Wisconsin*, is again offering their Corrosion and Heat-Resisting Steel Analyses Chart, which they have been publishing for seven years and have again brought up to date. The chart contains company-by-company chemical analyses of the various stainless steels on the market, and should prove valuable as a guide to engineers, executives and technical men.

2440

Walls, Floors, Ceilings Protected—A new synthetic resin "color coat" which comes in red, gray, green, brown and as a clear coat is valuable for use under difficult conditions where ordinary paint might not suffice. It resists alkalis, water, acids, grease and oils and can be used on a variety of interior and exterior surfaces. The new product is named *Colorflex Plus A.W.A.*, and its properties are further described in a four-page

booklet in color put out by the manufacturer, *Flexrock Company, Philadelphia, Pennsylvania*.

2441

Hooks, Tongs, Grips and Slings are thoroughly covered in a 15-page booklet put out by *Downs Crane & Hoist Co., Los Angeles, Calif.*, which contains on each page photographs, charts and description of the different types employed in handling such diverse loads as steel sheets and plates, paper cartons, timber, pipe, drums and baled material. The booklet includes a data sheet for estimating sling capacities and dimensions at various angles by the use of simple multipliers and a chart of comparative weights and average breaking strengths of materials commonly used for slings.

2442

Guide to Bay Area's Government Agencies—A 16-page "Directory of Federal Government Agencies for the San Francisco Bay Area" contains a listing of all important government departments and bureaus in the Bay Area and the names of Federal directors and key personnel, and should prove a useful source of information to interested communities and organizations. It is put out by the *San Francisco Bay Area Council, Inc., San Francisco*, as one in its series of publications dealing with this region.

2443

Fruehauf Model Catalog—Publication of a new "western edition" catalog is announced by

the *Fruehauf Trailer Company of California*. The 40-page booklet illustrates and describes the Fruehauf Trailer models most generally used in the Western states.

2444

Laminated or Molded Plastics—A comprehensive illustrated bulletin (CDP-578) describing facilities of the Plastics Division of the General Electric Company. Describes design, mold-making and molding, G-E sealing caps and sleeves, G-E mycalex, silicone rubber and 1422 high frequency insulation. *General Electric Co., Chemical Department, Pittsfield, Mass.*

2445

Electrical Tapes—Thirty-nine "Scotch" brand electrical tapes are described in the new 24-page two-color catalog announced for September by *Minnesota Mining & Manufacturing Co., St. Paul, Minn.* It contains 86 photographs of tape applications, describes the tape and tape research, and includes a discussion of electrolytic corrosion.

2446

Monel Roofing—A 24-page booklet entitled "One Metal Roof . . . For the Life of Your Building," has been published as a study of smoke, fumes and other corrosive agents that cause rapid deterioration of industrial plant roofs. Gives full data on a new, soft-temper Monel roofing sheet designed to overcome severe roofing conditions. *The International Nickel Company, Inc., New York, N. Y.*

2447

Submersible Pumps—Pumps that can be operated while completely submerged are described in a new four-page bulletin recently published by the Pump Division of the *Byron Jackson Co., Los Angeles, Calif.* Both lake and river intake types are described, illustrated and explained in the booklet, which also contains a list of the company's branches throughout the country.



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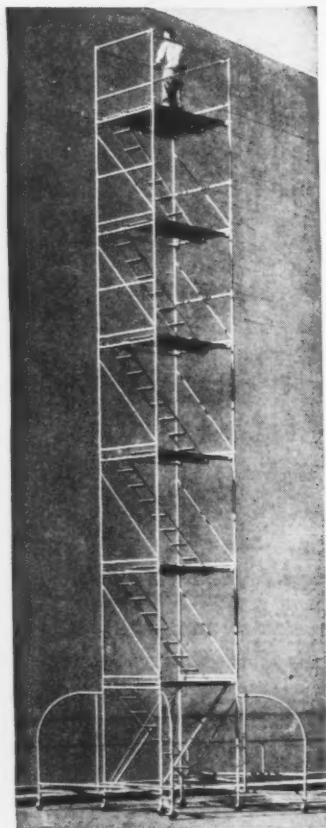
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Bay Area Employment Is Ahead of Population Gain

Total employment in California's metropolitan Bay Area, covering Alameda, Contra Costa, Marin, San Francisco and San Mateo counties, has shown a greater gain, 62 per cent, than the area's population increase, 49.4 per cent, for the seven year period between 1940 and 1947, according to a report by the Bay Area Council.

Manufacturing employment in the five counties showed remarkable increases. Shipbuilding, stimulated by the war, jumped 1,537.6 per cent in seven years. While less spectacular, the apparel industries led other forms of employment with a gain of 84.9 per cent, followed by chemicals, 72.2 per cent; metals and machinery, 65.9 per cent; stone, clay and glass, 62.0 per cent; food and kindred products, 53.8 per cent; petroleum, 40.4 per cent; automobile equipment, 27.6 per cent, and printing, 11.8 per cent.

Program For CMA Annual Meeting

A trade development panel featuring national and state experts in the field of procurement, and four other panels on fuel and power, state taxes and finances, unemployment insurance and freight traffic are included in the program for the

annual meeting of the California Manufacturers Association October 7 at the Fairmont Hotel, San Francisco.

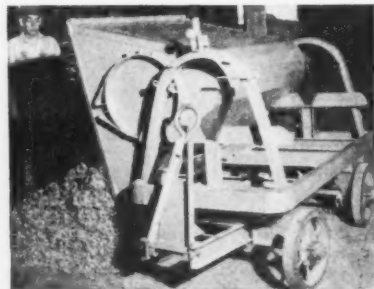
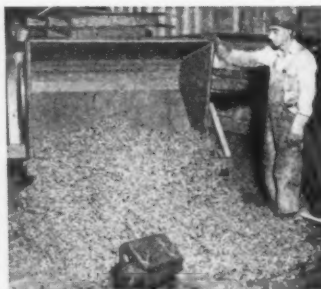
Banquet speaker will be Charles E. Wilson, president of General Motors, who will talk on the automobile market. Luncheon speakers are Richard M. Nixon, California Congressman, on the espionage hearings, and Cyrus Ching, director of the federal Mediation and Conciliation Service.

Morrell Opens New Packing Plant

An important addition to the Western food processing industry was made recently with the opening of a new \$500,000 plant by John Morrell & Co., fifth largest meat packing firm in the country. The new plant is situated at 208 Jackson Street, Oakland, and has facilities for smoking 250,000 pounds of meat per week, and slicing 60,000 pounds of bacon. B. E. Lawrence, Oakland manager for Morrell since 1935, continues as head of the new operation.

Smoking equipment installed by the company includes five smoke houses on the main floor, with smoke-making machinery in the basement. Dampened oak sawdust is used at present to make smoke, and it passes through the smoke houses several times until all flavor-imparting qualities have been exhausted.

E. W. C. FOUR WHEEL SIDE DUMP TRAILERS ARE ENGINEERED FOR THE JOB



Dumping copper shavings at General Electric Co.'s East Bay Cable Plant with Electric Wheel Co.'s Side Dump Trailers

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How to Cut Cost of Battery Repairs

By MERLE RANDALL
Consulting Chemist, Berkeley, California

REPLACEMENT of electric storage batteries that fail due to neglect or old age is an expensive item in any business or industry using batteries. To cut down soaring costs caused by the price of lead and the consequent high cost of new batteries, extensive investigation has been made to find a method of prolonging their life.

Pioneers, Inc., an Oakland firm headed by Jess M. Ritchie, has come up with a compound that seems to be an answer to the problem—although Mr. Ritchie and his associates declare that they do not know why their product works as it does. Patents are pending on their additive salts known as "Protecto-Charge," and reports from use of the product in the field indicate that batteries formerly considered dead and ready for scrap have been revived to normal use, with marked reduction in the amount of "shedding" of active material that was a weakness of previous battery additives.

A common cause of battery failure is neglect in keeping the electrolytic fluid at proper level through addition of pure water. Normally, water escapes through evaporation, and in overcharged batteries it is also decomposed and escapes as oxygen and hydrogen. This is known as "gassing." Overcharging tends to loosen the active material in the plates, which then sinks to the bottom of the container as battery mud.

If active material shrinks away from the grid there is a tendency for the evolution of gas on overcharge to take place on the grid bars, thus increasing the tendency for the grid to corrode and fail mechanically. Corrosion of the positive also causes excessive self discharge of the negative plate due to the antimony dissolved into the electrolyte from the positive grid.

Aging of Lead Sulfate

On discharging a storage battery, the gray sponge lead in the negative plate is transformed electrochemically to lead sulfate, and the reddish lead peroxide in the positive is also transformed into the same lead sulfate. On charge, the lead sulfate is changed back to sponge lead and lead peroxide.

When the lead sulfate is newly made in the plate it is very minute, soft and porous, and in this condition it is easily reconverted during the charging cycle. But lead sulfate "ages" rapidly, forming the more perfect ordinary lead sulfate crystals, and this aging, or crystal growth, takes place more rapidly in warm acid than cold. It has been observed that batteries used in warm climates fail more rapidly, and likewise, the hottest cell in a battery always fails first.

Certain foreign ions in the electrolyte interfere with the aging of lead sulfate, a

phenomenon well known to the chemist. While the beneficial action of certain salts has long been known, it was also found that, unfortunately, the tendency to shed active material was also increased—and of what use is good sulfate if it is not on the plates? Therefore, the addition of salts to the electrolyte has been frowned upon. If no additive is used, the active lead sulfate is allowed to age to form hard, inactive "sulfation" which cracks away from the grid and fails to be reconverted to lead peroxide and lead oxide on charging.

Development of "Protecto-Charge" appears to answer previous objections to use

of additive salts. Tests show that after a few cycles where it has been used, the active material is found to be soft and in firm contact with the grid. So far as has been observed it remains tight to the grid during the entire remaining life of the battery.

A CORRECTION

In the article "Seven Ways to Stay Ahead of Bad Business Weather" in the September issue, the name of one of the co-authors was misspelled. It should have read "K. M. Cuthbertson," not "Cuthbertsen."

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LABOR (Continued from page 74)

In making a decision in favor of the union, Mr. Komroff held that the Act does not define membership dues, and that in seeking elsewhere for a definition, dictionary and legal encyclopedia meanings of the word are broad enough to include "fines."

In commenting on the ruling, officials of the Furniture Manufacturers Association make the following points: (1) That the impartial umpire may not be the proper party to decide such an issue, because the issue involves interpretation of an Act of Congress, not merely a contract between parties, and that the case should go before the National Labor Relations Board or some other governmental agency or the courts. (2) If the contract, with reference to "fines" is void (which presumably must be decided by someone other than the umpire) then it is not likely that the umpire has any jurisdiction to decide the dispute. (3) In interpreting an Act of Congress, one does not turn to the union constitution and by-laws to determine the intention of the Congress. Because the union constitution includes fines within membership dues does not mean that Congress intended to do so. (4) The Assistant Attorney General of the United States considered in his ruling (that for purposes of criminal sections of the LMRA, membership dues included "assessments" as "incidents of membership") only the question of whether "assessments" were included in membership dues—he said nothing about whether "fines" were so included. (5) That while the Department of Justice presumably will not prosecute criminally any employer who deducts "assessments" authorized by an employee, it will be remembered that the National Labor Relations Board has something to say about the matter, too.

The FMA also calls to the attention of its members a statement by Mr. Robert N. Denham, general counsel, in which he said:

"The question has frequently been raised as to whether non-payment of assessments or fines by a member affords grounds for his discharge upon demand by the union. The answer is that we can find nothing in the law to justify a discharge. The language of the Act is clear. It apparently was well considered and it limits justifiable discharges under a union-shop contract to the narrow ground of failure to pay initiation fees and periodic dues. Many subterfuges have been tried by the use of peculiar language in contracts to evade this limitation. No charges have as yet been filed under such provisions so far as I know, so that these questions of evasion have not officially come before us, but in my opinion the law is clear; its intent and purpose not only are obvious on the fact of the law itself but are reflected in the extensive legislative history out of which the law grew. Against such a background, subterfuge and evasions cannot be expected to be popular

in the office of the general counsel, when it becomes necessary to apply the law to any given case coming before us, and the decisions of the Board on paralleling cases indicate the same treatment there."

MORE 'WESTERNERS AT WORK'



Walter G. Wheeler

Walter G. Wheeler has been named chief engineer by Hufford Machine Works, Inc., Redondo Beach. He joined the firm in December, 1947, and has been working on design of their line of hydraulic stretch forming machines and hydraulic presses.

Joseph Goldie, president of Rainier Brewing Company, San Francisco, since 1938, has retired from active direction of the firm.

G. Hamilton Beasley has succeeded Cecil Bardwell as president of Bardwell & McAlister, Inc., Burbank, manufacturers of photographic and electronic equipment. Mr. Bardwell resigned because of ill health. Remy L. Hudson of Chicago has been elected executive vice-president of the firm.

Charles R. Brown, long-time assistant to the president of Tide Water Associated Oil Company, advanced to vice-president. He is a member of Associated's Western Division Operating Committee, and will retain his general administrative duties.

A. P. Heiner, general traffic manager of the Kaiser Company, Inc., Iron and Steel Division, has been appointed assistant to the vice-president in charge of public relations. He will continue general supervision of traffic.

E. E. Hedene, chief engineer of the Nordstrom Valve Division, Rockwell Manufacturing Company, in Oakland, has been appointed chief engineer of all operations of the same division, with headquarters in Pittsburgh, Pa.

Associations Elect

E. L. Skeel, recently retired president of the Seattle Chamber of Commerce, named to head the Pacific Northwest Trade Association. He replaces John P. Kiley, who went to Chicago as vice-president in charge of operations for the Chicago, Milwaukee, St. Paul & Pacific Railroad.

S. H. Taylor, Seattle, elected president of the Washington Association of Public Accountants for 1948-49; R. Toole, Spokane, is first vice-president; Frank F. Church, Yakima, second vice-president, and Homer Algood, Seattle, sec.

Theo. P. Dresser, Jr., chief engineer for Abbot A. Hanks, Inc., San Francisco, elected director of the American Society for Testing Materials.

R. E. Kucher, president of Olympic Foundry Company, Seattle, is the new chairman of the board of Washington Employers, Inc., succeeding Ferdinand Schmitz, Jr. Mr. Kucher's post as vice-president of the group has been filled by Phil Bannan, Seattle area manager of Western Gear Works. H. D. Hailey, Lawrence Calvert and Darrah Corbet were reelected president, vice-president and secretary-treasurer, respectively.

Northwest Electric Light & Power Association elected W. L. Thrailkill, Spokane, as president. He is assistant general manager of the Washington Water Power Co. J. E. Corbett, Jr. was named vice-president. Five state vice-presidents elected include Ralph E. Gale, Idaho; R. C. Setterstrom, Montana; Frank Warren, Oregon; R. H. Ashworth, Utah, and H. C. Webb, Washington.

PG&E Adds to Natural Gas Resources

Application has been filed with the California Public Utilities Commission by the Pacific Gas & Electric Company for permission to construct a 510-mile pipe line to connect at Needles with 1,090 miles of pipe line running into natural gas fields in Texas and New Mexico. The new system would provide up to 400,000,000 cubic feet of natural gas for northern California.

Total cost of the line would be more than \$145,000,000, of which \$45,000,000 would be spent by PG&E. It would start at Milpitas, at the southern end of San Francisco Bay, and run south and east via Kettleman Hills, Bakersfield and Mojave to Needles. About 200,000 tons of steel would be required, and following permission by state and federal authorities, would require about 2½ years to complete.

California Leads Again in Wine Consumption

Although New York led all other states in total apparent consumption of wine last year—for the first time since Repeal—California again topped the nation in per capita consumption, according to figures prepared by the Wine Institute. Californians drank 1.57 gallons each in 1947, followed by

District of Columbia with 1.45 gallons. Total apparent consumption in New York state was 18,586,612 gallons, the Institute reports, while California's total was 15,494,772 gallons.

If withdrawal rates for the early months of 1948 continue at high enough levels to maintain the 1940-45 relationship between early months and full year withdrawals, the Wine institute estimates that total wine consumption for the United States this year should exceed 121,000,000 gallons.

Boycott Ruling

A trial examiner for the National Labor Relations Board has held that Denver AFL locals of the carpenters, electrical workers and plumbers unions violated the Taft-Hartley Act ban on secondary boycotts when they picketed to force two employers to stop doing business with an electrical contracting firm. He held that the firm was engaged in commerce under the new law, disagreeing with a judge who had ruled that the dispute did not affect commerce and was an intra-state matter. The examiner stated that the judge had not decided the case on its merits.

Redwood Research

A research committee has been established by the California Redwood Association to explore the advisability of vari-

ous research projects for the California Redwood lumber industry and means of carrying out the research. Investigations will include studies in the utilization of unused wood in mill and logging operations. F. C. Kilpatrick, Rockport Redwood Company, is chairman. Other members are: Gray Evans, Hammond Lumber Company; H. A. Libbey, Arcata Redwood Company; R. E. Schreck, Union Lumber Company; Kenneth Smith, The Pacific Lumber Company, and B. F. Wade, California Redwood Association.

Flood Goes Down, But Not Costs

No material decrease in building costs in the Northwest can be foreseen for the next 18 months. In the Seattle area unions of the building trades council will receive a 13-cent hourly increase on January 1, 1949, under a two-year-old contract in which wage rates are tied to the Bureau of Labor Statistics' cost of living index.

In the Portland area wage rates were forced up in spite of yearly contracts which had been signed with provisions for no increases by action of local unions in southwest Washington. After sagging slightly during the winter months lumber prices have more than recovered in most instances, and indications are that they will continue upward.

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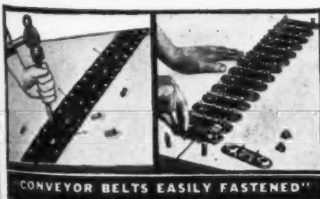
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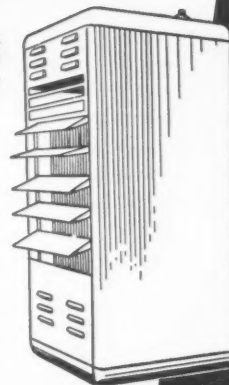
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Bow-Casting Welded In Record Time

UNDER the impetus of war-time production, the use of arc-welding came to the foreground in the shipbuilding industry a good deal faster than it might have done in more normal circumstances. Techniques were adopted almost overnight when it was found that welding combined speed with necessary strength. As a result of lessons learned, the San Francisco Yard of Bethlehem Steel Company, Shipbuilding Division, recently

chalked up another "first" on its scoreboard of successfully accomplishing the difficult or unusual in ship repair and conversion.

In just seven working days, the yard completely replaced a damaged bow casting on a Victory ship with a fabricated stem weldment—the first time such an all-welded steel replacement has been made and installed on this type of vessel. Some idea of the magnitude of the weld may be gathered from the fact that 650 pounds of electrodes were used, principally of 5/16-inch size.

The repaired vessel was the Chunking Victory, formerly the Trinidad Victory,

purchased by the National Government of China not long ago. Commissioned in September, 1945, at California Shipbuilding Company, Los Angeles, the ship was operated between Pacific Coast ports, Korea, Japan, and Alaska. While running at 17 knots off the fog-shrouded tip of Adak Island, the vessel ran aground, and her bow casting was completely destroyed, along with considerable plating of both No. 1 and No. 2 double bottoms.

The Victory ship made San Francisco under her own power, but was laid up in Suisun Bay because of the extensive repairs necessary. In June of this year she was resurveyed in dry-dock by prospective buyers from the Chinese Government, and it was pointed out by V. A. Christensen, structural foreman at the Bethlehem yard, that the main factors in getting the ship back into service were repairs to the ripped bottom, and the problem of getting a new stem casting. Attention of the new owners as well as the American Bureau of Shipping was called to the fact that making patterns for a new stem and casting it would require 30 to 60 days longer than it would to fabricate the section out of plate and weld it together by electric welding.

Decision was finally reached to fabricate the new stem, and the yard's draftsmen drew up a set of plans which were rushed to the ABS in New York for approval. On July 19, the yard was authorized to proceed with repairs as outlined in the blueprints. That same day the ship was dry-docked and repairs were started. Seven working days later the new stem had been lofted, fabricated, welded, stress relieved, checked for alignment and erected in place in the ship.

Steel used for this job was 11/2-inch and 2-inch plate.

While docked, the tailshaft was hauled, inspected, and reinstalled, and a new spare tailshaft was manufactured by the yard and stowed aboard the vessel. To put the Chunking Victory in operating condition, the Bethlehem yard also opened up all turbines, boilers, and reduction gears for survey, and the boilers, piping, and lube oil systems were chemically cleaned, and the vessel was completely rerigged.

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The Crank-Shaft Turn Mill pictured has two vertical columns, each of which carries 2 cutter slides, one upper, and one lower.

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Conciliation Service Expands In Western States

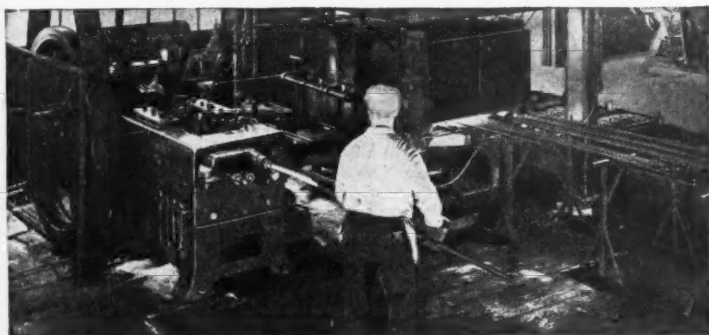
The Federal Conciliation Service has expanded its coverage by adding more districts. California, Nevada, Arizona and Hawaii become Region 12, with headquarters at San Francisco and probably W. P. Halloran as director. He has been assistant director for the eleven Western states area. E. P. Marsh, who has been the Western director, expects to move to Seattle as director of Region 11, covering Oregon, Washington, Idaho, Utah and Montana. Colorado will be part of the St. Louis district and New Mexico is joined to Dallas.

48-TON INGOT MOLD CUT UP IN 96 MINUTES



*Recently a customer wanted a 48-ton ingot mold cut to charging box size, and a large Pacific Northwest iron works cut it. Using a 2½-in. square billet as waster, oxyacetylene cutter went through 12-ft. cut in 15-in. casting in 96 minutes, with water-cooled torch.

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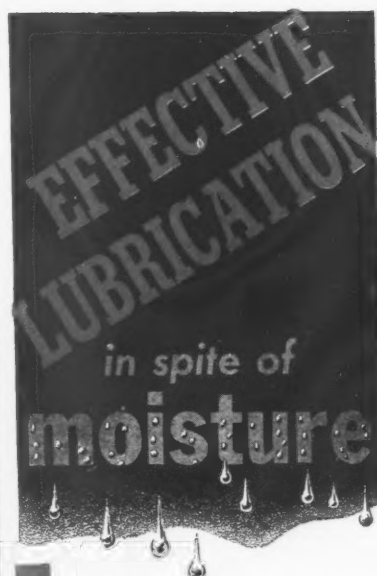


A heading machine cutting sections from heated steel rods and compressing them in a die to a rough spherical shape.

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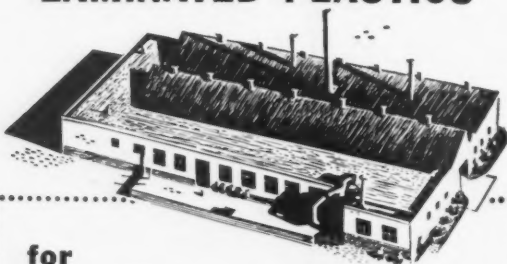
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OPPORTUNITY SECTION

PACIFIC NORTHWEST REGIONAL

(Continued from page 70)

A new development of chemical grade limestone has been started near Baker, Oregon, by Chemical Lime, Inc. Richard N. Spencer, president, reports that nearly a million tons of limestone have been discovered, with reasonable possibilities of there being several more million tons present in unexplored portions of the deposit. Initial sampling indicates that the limestone is 99% pure, and a typical analysis on a burnt-line basis is silica, 0.30%; magnesia, 0.17%; alumina and iron, 0.35%; phosphorus, 0.008%. Company officials expect to deliver the limestone in the Portland area at a delivered price of less than \$6 a ton.

Another indication of the trend toward regional cooperation is the decision of the industrial managers of chambers of commerce in Oregon, Washington and British Columbia to form an informal association that will meet several times each year to discuss matters of general interest in the field of industrial development.

Oldest Beet Sugar Mill Starts 80th Campaign

The Alvarado refinery of Holly Sugar Corporation, near Oakland, California, is in the midst of its 80th campaign—a campaign being the trade term used to denote the seasonal processing of sugar beets.

The Alvarado refinery was established in 1879, and is generally accepted as the oldest beet sugar mill in the United States, and probably in the world, according to the American Beet Sugar Association.

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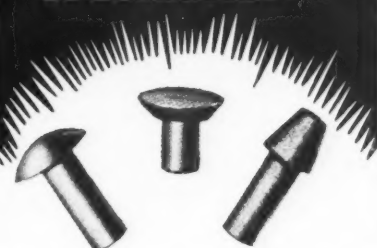
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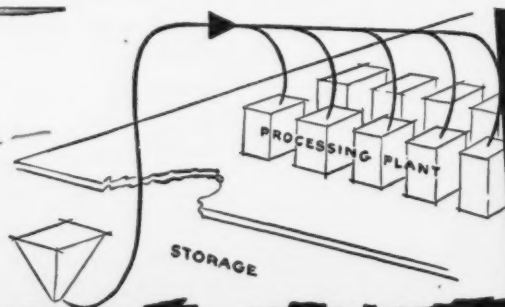
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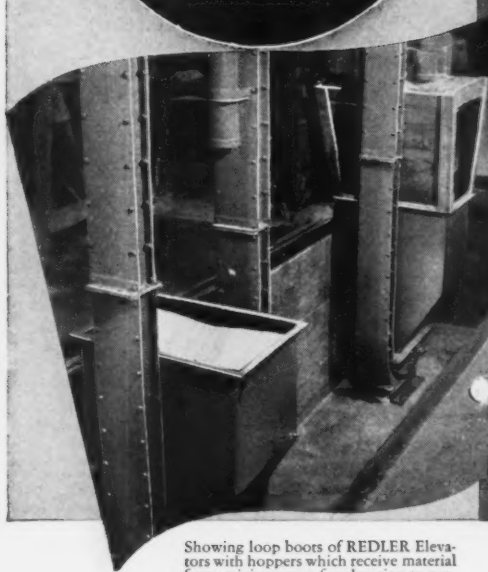
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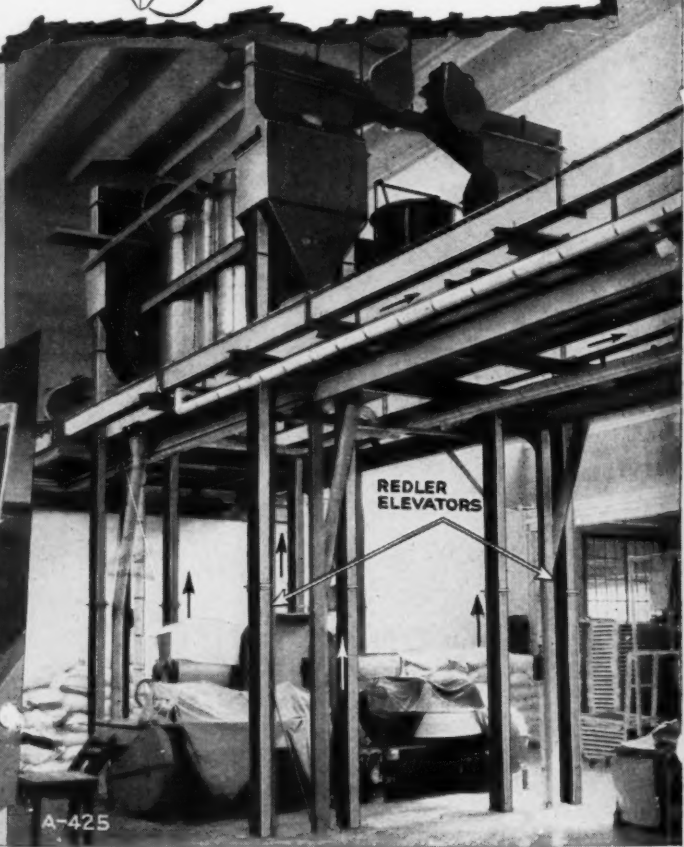
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